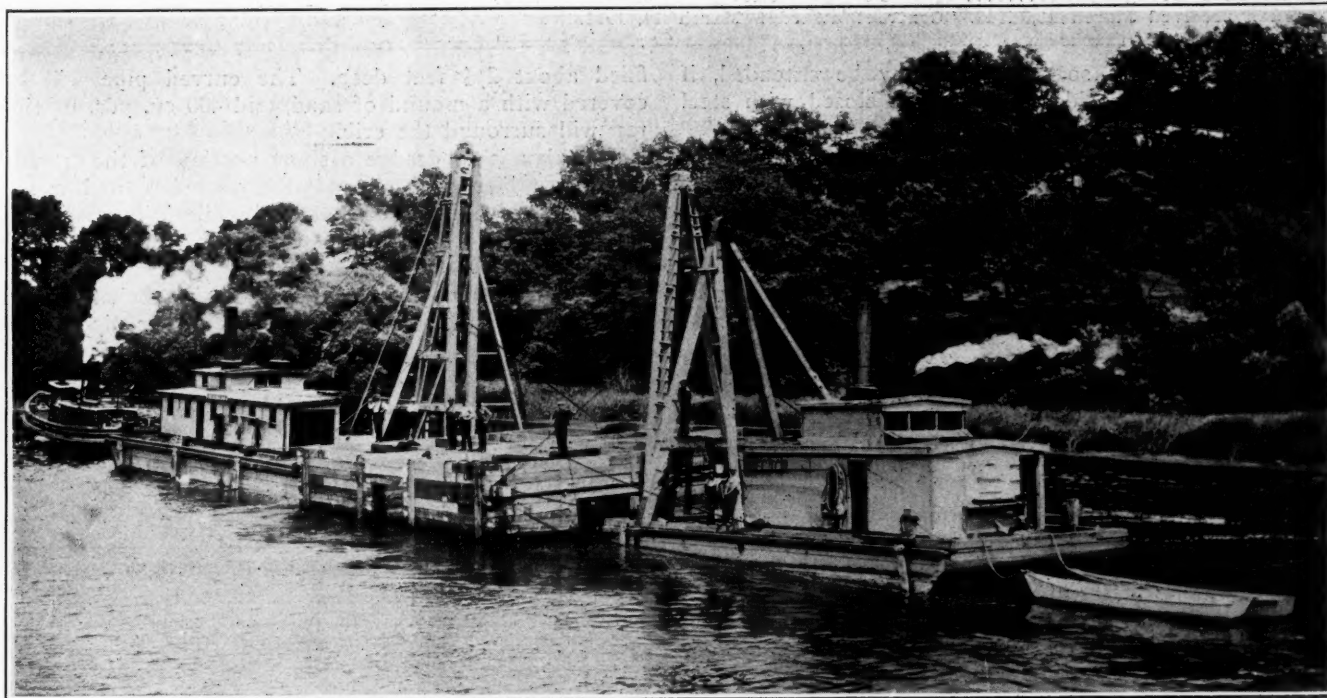


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No 7.



TOWING OUTLET CRIB DOWN THE GENESEE RIVER.

LARGE SUBMERGED SEWER OUTLET

Laid in Lake Ontario to Serve as Effluent Pipe From the Sewage Treatment Plant of Rochester, N. Y.—
Details of Crib Construction—Method of Laying Pipe—Special Joints.

By JOHN F. SKINNER, Principal Assistant to City Engineer, Rochester, N. Y.

The sewage disposal system of Rochester, N. Y., which has been under construction for some time, is making rapid progress, and the crib at the lake end of the effluent pipe was sunk a few days ago.

The city lies about 265 feet above the mean level of Lake Ontario, and its geographical center is 6 miles distant from the lake shore.

The city, up to the present time, has been drained by a combined system into the Genesee river through eight main outlet sewers, which serve territories having areas varying from 187 acres to over 5,000 acres. An interceptor is being constructed to receive the dry weather flow and two and one-half additional volumes of storm water from these outlets, which sewage and storm water will be conducted to disposal works near the lake, and the effluent discharged at a point 7,065 feet from shore in about 50 feet of water.

The effluent conduit will be a 66-inch lock-bar pipe, made up of $\frac{1}{2}$ -inch steel plates dipped in "Pioneer

Mineral Pipe Coating." Proposals for this portion of the work were received March 13, 1912, and on the following day the contract was awarded to the T. A. Gillespie Co. A summary of the bids is given on the next page.

It will be noted that tenders were also invited for "Ingot Iron" from "Cast-Iron" pipe. It was not thought, however, that the existing conditions warranted the greater expense for material other than steel. The high cost of the cast-iron pipe is, in a measure, due to the requirement which specified that it be laid on pile bents.

Borings made in the lake bottom indicate fine sand and some clay with but little gravel.

The crib, which is 46 feet square and 24 feet high, is constructed of 170,000 board feet of 12 x 12-inch hemlock timber. It contains a steel special to which is bolted the last length of the pipe. The special has a 6-inch outlet in line with the pipe and two 38-inch outlets, one on each side. These three openings are pro-

BIDS RECEIVED FOR OUTLET PIPE AND CRIB.

Bid No. 1.	Earth excavation in open trenches and pits, Section I, 3,000 cu. yds.	Steel outlet pipe and laid, complete, Section I, 2,200 lin. ft.	Steel outlet pipe and laid, complete, Section II, 7,054 lin. ft.	Timber and plank in place complete, 10-12 per M. B. M.	Concrete masonry, 100 cu. yds.	Outlet crib in place, complete.	Additional riprap in place, 1,000 cu. yds.	Amount of proposal.
The T. A. Gillespie Co	\$1.50	\$20.00	\$26.00	\$60.00	\$7.50	\$20,000	\$3.00	\$265,254
The Central Dredging Co75	28.94	28.50	50.00	10.00	17,500	3.25	293,707
Lake Erie Dredging Co	2.00	20.00	30.00	60.00	7.00	20,000	2.50	297,420
Houston Barnard	1.00	15.00	36.00	50.00	7.00	20,000	4.50	321,644
Bid No. 2.		Ingot iron 2,200 lin. ft.	Ingot iron 7,054 lin. ft.					
The T. A. Gillespie Co	\$1.50	\$27.00	\$33.00	\$60.00	\$7.50	\$20,000	\$3.00	\$330,032
Houston Barnard	1.00	18.00	39.00	50.00	7.00	20,000	4.50	349,406
Bid No. 3.		Cast iron 2,200 lin. ft.	Cast iron 7,054 lin. ft.					
Hiram W. Phillips	\$2.00	\$20.00	\$46.00	\$48.00	\$9.50	\$15,000	\$2.25	\$405,164
Lake Erie Dredging Co	2.00	32.00	42.00	60.00	7.00	20,000	2.50	408,468

Bids received March 13, 1912. Contract awarded March 14, 1912.

vided with flanges so that they may be extended, if necessary, and the side openings are closed with steel covers.

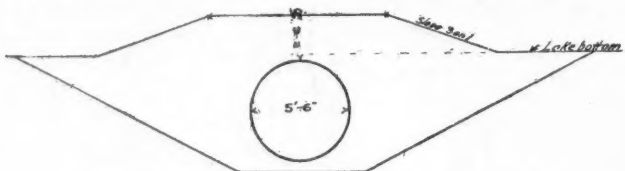
The crib has pockets loaded with 1,075 cubic yards of stone. It was constructed at a dock two miles up the river from its mouth, and was towed to its site, two miles east of the river's mouth, where it was sunk, guided by piles driven on two sides of its position.

The lake bed was dredged so that the bottom of the crib is 3 feet below lake bottom, the mouth of the dis-

filled about 2½ feet deep. The curved pipe will be covered with a mound of sand, and 400 cu. yds. of riprap will surround the crib.

The plan is to dredge a short portion of the trench, drive four piles at each end of a pipe length, lower a section of pipe into position and while it is supported from the pile clusters make the joint and backfill the trench before moving to the next length.

The submarine joint used consists of a socket on one pipe into which the spigot end of another pipe is in-

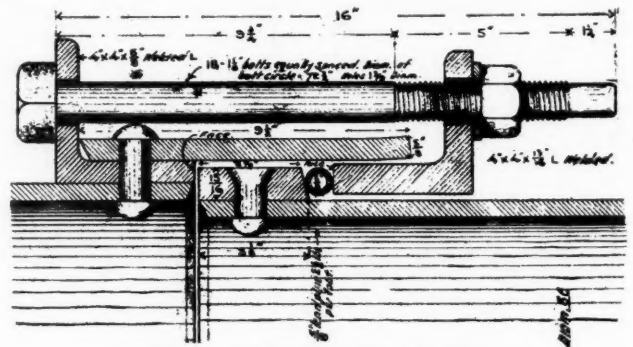


TYPICAL SECTION OF DREDGED TRENCH.

charge pipe is 10 feet above lake bottom, and the top of the crib will be 26 feet below low water.

The contractor's plant consists of a 12-inch hydraulic dredge with 90-foot ladder; a pile driver scow 32 feet 6 inches x 80 feet; two derrick boats, the smaller one 21 x 50 feet, and the larger 34 feet 6 inches x 95 feet; two tugs, and a diver's boat with two complete equipments.

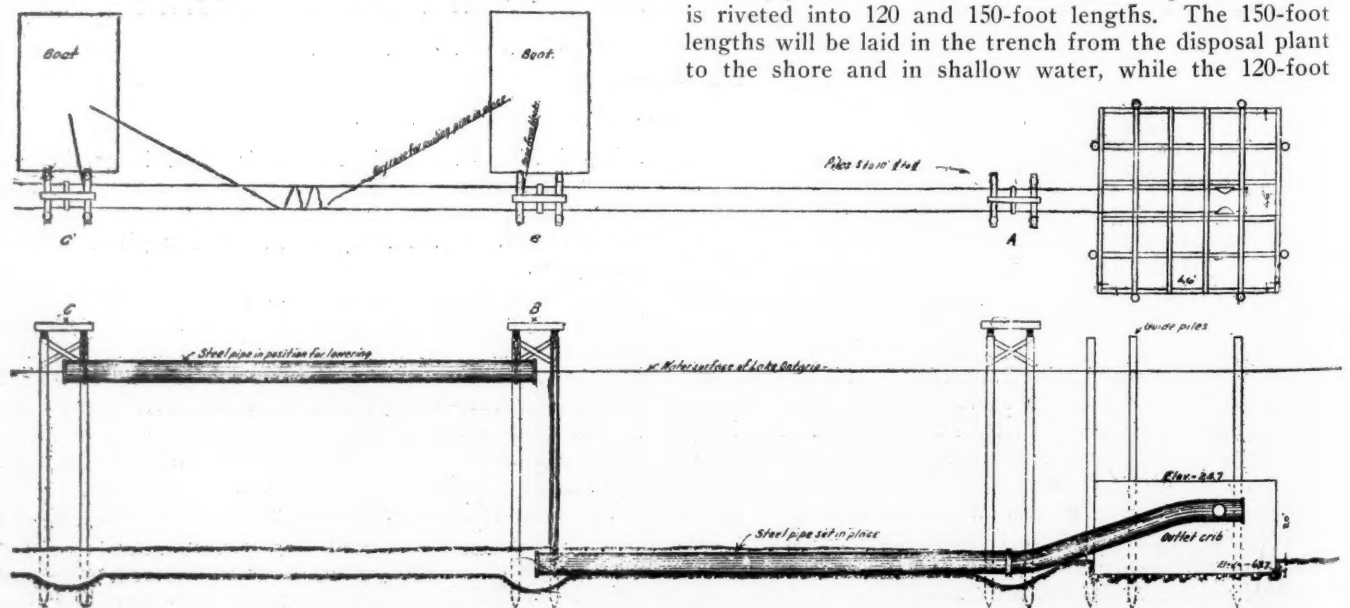
The pipe leaves the crib a little above lake bottom, curves downward and then horizontally so that the remainder of the pipe can be laid in a trench and back-



DETAIL OF SUBMARINE JOINT.

serted. A gasket or ring of 1-inch heavy lead pipe is forced into the base of the socket by a follower which is drawn up by bolts manipulated by a diver. The city also has a diver who inspects the work.

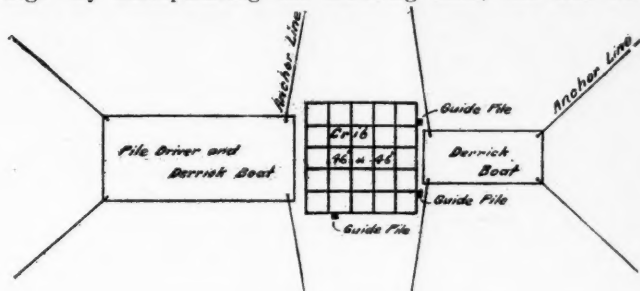
The pipe, which is received in 30-foot tapered sections, is riveted into 120 and 150-foot lengths. The 150-foot lengths will be laid in the trench from the disposal plant to the shore and in shallow water, while the 120-foot



PROPOSED METHOD OF LAYING OUTLET PIPE FROM CRIB TO SHORE.

lengths will be laid in the deeper water. The crib was satisfactorily sunk on Friday, July 26, reaching the bottom at 6 P. M.

The accompanying sketch shows the relative position of the crib and derrick boats and the method of mooring. By manipulating the mooring lines, the crib was



METHOD OF MOORING CRIB.

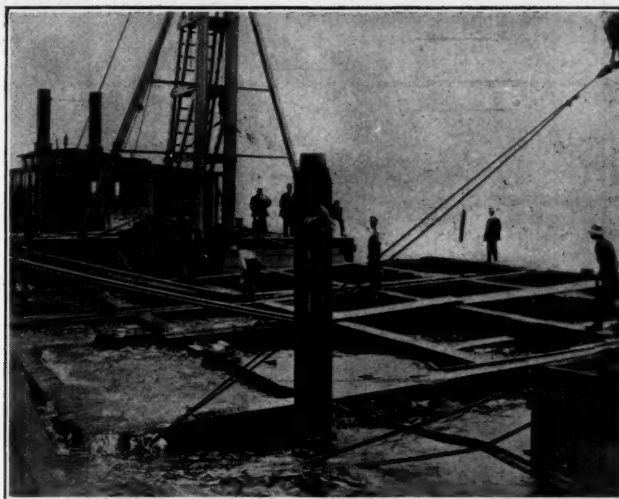
held snugly against the guide piles during the lowering. The photograph shows the position of the slings on two sides of the crib as well as additional lines to each corner which were paid out simultaneously during the lowering. But little more stone was put into the crib than was required to sink it; the remainder of the pockets will be filled later.

The pipe will be laid from the crib toward the shore, where a slip joint will be made with the shore pipe.

The work is in charge of Frank Wilcox, M. Am. Soc. C. E., Engineer, and E. S. Williamson, Superintendent for the contractor, and is being directed by C. Arthur Poole, Assoc. M. Am. Soc. C. E., general assistant on Sewage Disposal for Edwin A. Fisher, M. Am. Soc. C. E., city engineer.

In addition to the above, the following details may be of interest:

The 66-inch outlet pipe is to be made of steel in lengths of not less than 6 ft., with longitudinal seams double riveted and circular seams single riveted, all rivets to be $\frac{7}{8}$ of an inch in diameter. An expansion joint is provided, consisting of two cylindrical sections of $\frac{1}{2}$ -inch pipe, one 66 inches inside diameter and 4 ft. 9 in. long, the other slightly greater than 67 inches inside diameter, so that the two may telescope one within the other. At the end of the outside section a ring of angle iron is fastened with its face flush with the end of the section and entirely surrounding the outside of the pipe, bolted to which and 2 inches from it is another

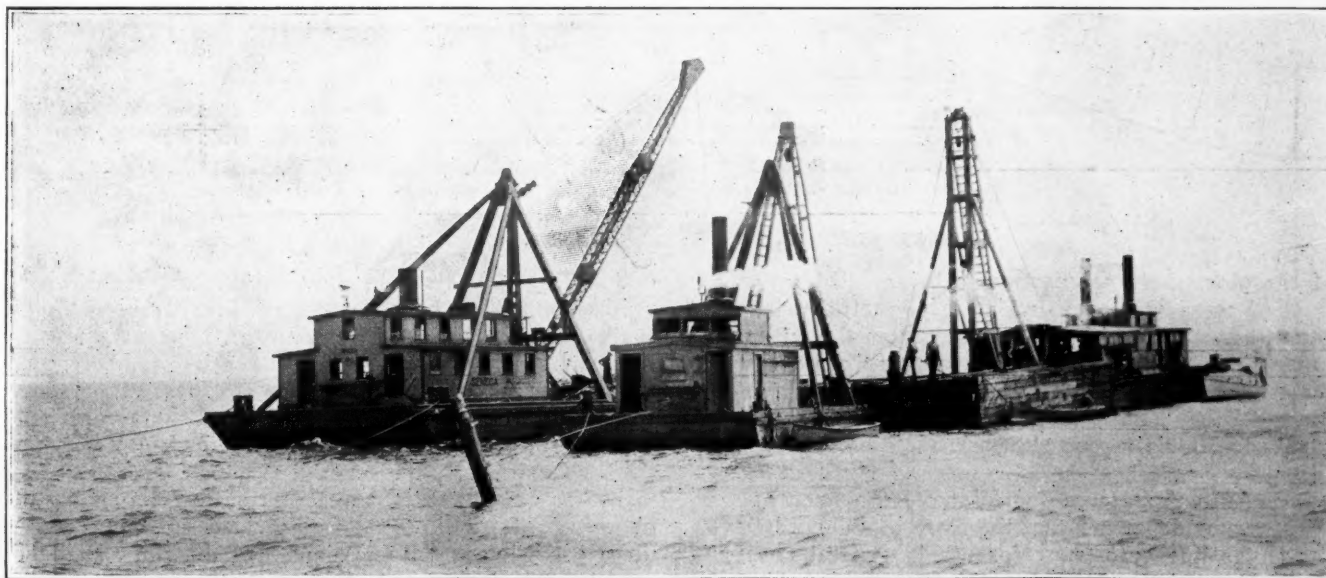


CRIB PARTIALLY LOADED.

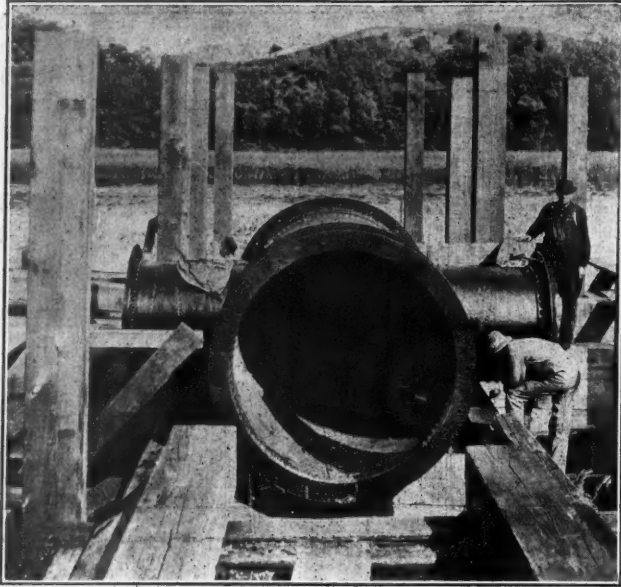
Showing method of lowering from derrick boats, and a guide pile.

ring of angle iron of similar diameter, so that the two give between them an annular space of 2 inches. In this space is placed a ring of 2-inch rubber, the diameter of the ring being 6 inches less than that of the outside of the smaller telescoping section. This will provide a water tight joint between the rubber ring and the latter section, and by screwing up the bolts connecting the two angle iron rings a water tight joint is made between the outer section and the rubber ring. This joint provides for a lateral movement of 36 inches to allow for expansion or contraction in the length of the pipe line.

The outlet crib is 46 ft. square on the outside and is divided into 25 pockets, which extend from the top to the floor at the bottom. The crib is constructed of 12x12 timber fastened together with 20-inch by $\frac{7}{8}$ -inch drift bolts and one-inch bolts with head and nut. A 12x12 post was placed at each corner, two posts on each side at the corners of the pocket on the middle of that side, four posts at the corners of the central pocket, and four other posts on the diagonals between these latter and the corners of the crib. These pockets are 8 ft. square inside dimensions and the entire crib is 23 ft. high. Thirteen of the horizontal timbers are bolted to each vertical post. A drift bolt was used at each intersection of horizontal timbers. In walls of continuous timbers,

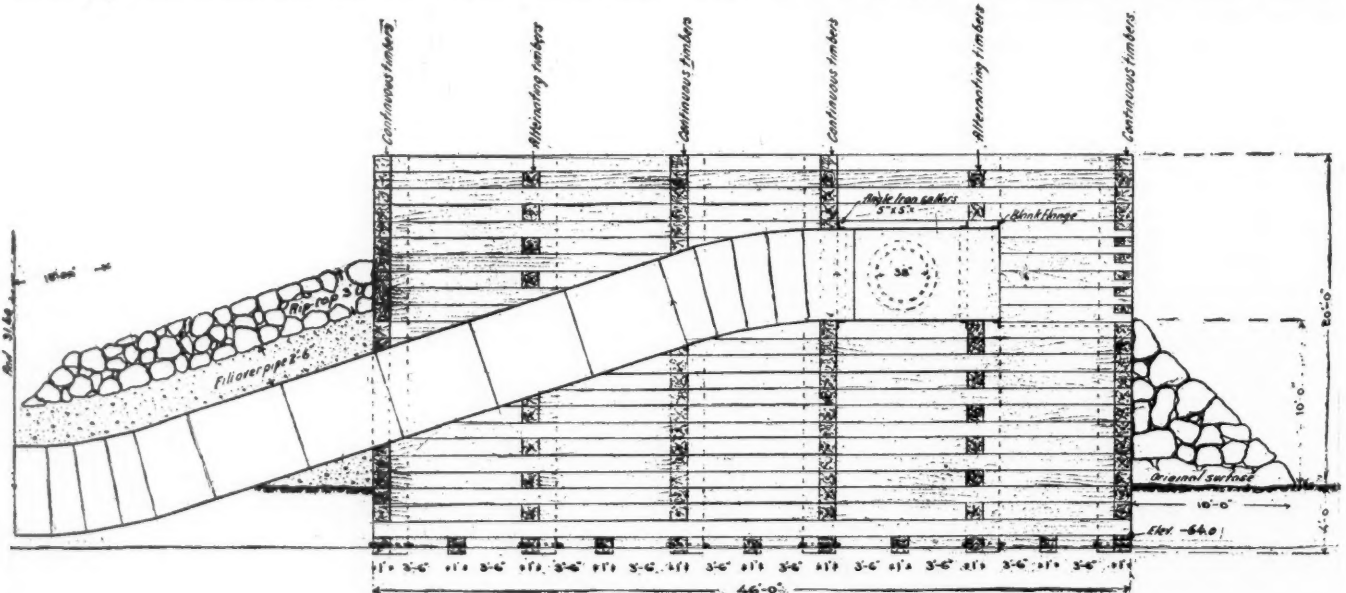


CRIB IN POSITION IN LAKE BEFORE SINKING.



STEEL SPECIAL AT END OF PIPES IN OUTLET CRIB.

butt joints were permitted, with a drift bolt in each timber. In the walls having alternate timbers, half-lap joints were required, giving a 12-inch lap, and fastened together with two 12x6x24-inch fish plates fastened with three one-inch bolts; the splices breaking joints at least 4 feet. It is provided that ultimately all the compartments be filled to the top with loose stone, excepting those through the center of the crib (through which the outlet pipe passes), these being filled only to the bottom of the pipe; and excepting those at right angles to the outlet pipe and in line with the two T outlets at the end



SECTION THROUGH CENTER OF CRIB AND PIPE.

of the pipe, these compartments being filled up to the level of these outlets, at which level the compartments were floored over with 3-inch plank from the outlet pipe to the sides of the crib, thus providing a channel through the crib connecting the side outlets with the surrounding water. When finally in position, the crib is to be surrounded with rip-rap, as shown in the illustration.

Auto Apparatus for Water Department.

The water department of the town of Concord, Mass., has a gasoline auto-truck for use in general construction and repair work, and a runabout for reaching the various and widely scattered parts of the works.

MUNICIPAL CONTRACTS

Substance of General Municipal Law Proposed by Society of Engineering Contractors—Specifications, Contract, Advertising, Bidding.

We have received requests for more information concerning the proposed general municipal law governing contracts which was referred to in a recent issue of Municipal Journal, and consequently present herewith an abstract of this law as it has been proposed by the American Society of Engineering Contractors and published by them in the Journal of that society, Volume 4, No. 5. While this proposed act is designed primarily for adoption by the State of New York, it is proposed to bring it before the Legislatures of all the States.

The act is divided into six sections, these being: (1) The purchase of supplies and making of contracts; (2) advertisement, contract documents, etc.; (3) bids and bonds; (4) specifications; (5) execution of contract work, and (6) violations. Under the first head it is provided that all expenditures of public money for supplies or for public construction amounting to \$100 or more be made only by written contract; while those for less than this amount may be made by informal agreement, the agreement being in writing in all cases except that in emergencies purchases and contracts for less than \$100 may be made by telephone or telegraph without advertising, provided at least three bids be obtained and that the bidders and prices, with a statement of the nature of the emergency, be scheduled and posted for one week in a suitable place open to public inspection.

Under the second head it is provided that if the construction or purchase involves \$5,000 or more it shall be advertised in the three local papers of the county which have the largest sworn circulation and in at least

one weekly trade journal of suitable character, the advertisements appearing for at least four weeks prior to the opening of bids. In the case of dailies, the advertisement shall appear for six consecutive numbers, and again once or twice just before the day of opening, while in weeklies it shall appear in every issue previous to the date of opening. Where the contract is for less than \$5,000 it shall be advertised as above, but not necessarily for more than two weeks prior to the opening of bids. Work shall not be sub-divided so as to evade these provisions. Specifications and drawings shall be completed and ready for distribution before advertising begins. All individuals or municipal bodies who pur-

chase supplies or make contracts must keep in their offices classified lists of all known dealers or contractors likely to bid or who request that their names be contained therein, and these shall receive copies of the advertisements by mail as soon as they begin to run.

Every contract document shall contain the advertisement, instructions to bidders, specifications and contract proper. The advertisement shall consist of a notice of the kind of work or material wanted, the funds available for it and the place where information can be obtained. Instructions to bidders shall cover all information necessary for the intelligent preparation of a bid which is not contained in the specifications or contract. The specifications shall include the complete drawings and descriptions of what is required for the work in question. The contract must be a legal document, containing no specifications whatsoever. Anyone must be furnished with a copy of the specifications and drawings upon the payment of a price which does not exceed the actual cost of producing them, no other consideration being required for obtaining them, and the cost price being refunded upon their return after the opening of bids. All these documents shall be clear and free from repetitions and shall contain all the information necessary for the preparation of a bid. Words shall be used with the meaning specified in Webster's Dictionary. The specifications shall contain a list of all materials to be used or handled to within 10 per cent. of the amount required to complete the construction successfully and economically. Funds must be legally available for any contract before it is advertised.

Under the heads of bids and bonds it is specified that each bid must be enclosed in a plain opaque envelope sealed with wax and stating the work bid upon and the date of opening, this being enclosed in a large opaque envelope addressed to the official, but without any indication that it contains a bid. All bids shall be opened in public at the time and place stated in the advertisement, all those which conform to the provision of this act in all essentials being opened. If, upon opening, any bid is found to contain erasures or changes in prices, either in figures or in wording, it shall be rejected. After the opening the public shall have the right to inspect any bid for a reasonable length of time in the presence of a designated official. No marks or changes of any kind shall be made upon a bid by any person after it is opened. The contract must be awarded to the lowest bidder at the time and place of opening of bids, or as soon as the bids are computed, except that an award may be delayed temporarily if the bond is insufficient.

The bond shall place all responsibility upon the bondsman or bonding company and shall make suitable provisions for the taking over of the contract by the bondsman in case of delays, etc., on the part of the contractor, and shall provide penalties for the failure of the bondsman to do this, with provisions for their enforcement. If the bond is considered unsatisfactory, the city official may require substitutes, subject to appeal to the courts. A certified check or bidder's bond insuring the signing of the contract and not exceeding 5 per cent. of the estimated cost of the contract shall be required of bidders. The contract bond shall not exceed 25 per cent. of the estimated cost. A contract shall not call for the retention at any time of more than 10 per cent. of the payments made, or of the estimated cost of completing the work from that time when the latter would call for less.

Under the head of specifications it is provided that these shall contain an official estimate of the amounts of the different classes of work to be done and lists

of material to be furnished; also an official estimate of the total cost of the work and a provision that no bid aggregating more than 25 per cent. beyond this will be accepted. If any item is found to exceed the estimated quantity by more than 20 per cent., the payment for excess amount shall be fixed by arbitration, the contractor receiving actual reasonable cost plus 15 per cent.

All excavation shall be unclassified, and specifications for excavating (except dredging) shall require unit prices for each 5 ft. depth measured from the surface. Material which the contractor loosens by drilling and blasting will be classified as rock and a bid given for loosening rock. The contractor shall be paid for removing material only within certain specified lines, any removed outside of these being at his own expense. If conditions affecting the work should prove essentially different from those represented, any increase or decrease in payment therefor shall be fixed by arbitration. A price shall be given for each of the different kinds of material or classes of work and the bids compared shall be the sums of the products of each item by its price. Contracts shall not include furnishing any supplies beyond those actually used in construction, except essential appurtenances of machinery. So far as specifications and bidding can be managed, all shall bid upon fair terms for exactly the same work and upon terms of exact equality in so far as the public official can secure this.

No contract shall require the contractor to construct the work according to the specifications and at the same time be responsible for accomplishing certain results, or to guarantee the endurance of the work, or be responsible for repairs for any specified length of time after its completion. No "extra work" shall be required without specified remuneration therefore. The terms "discretion of the engineer," "judgment of the engineer" or their equivalent shall not appear in any public specification or contract calling for their exercise after the opening of bids, unless they be accompanied by a full explanation in the specifications showing exactly how they will be exercised. It shall in no way be required that any individual or company disclose the fact that it contemplates bidding or is interested in any coming letting. Specifications shall be so drawn up that in comparing bids the total cost of the work is the only thing to be considered. A full copy of all plans and specifications must be easily available to the public in the vicinity of the work at all times.

Differences between the parties to the contract shall be adjusted by arbitration, the contractor selecting one arbiter, the public official another and these two a third. If either party refuses to appoint an arbiter within three days after the other has made a written request for arbitration, or if within ten days these two do not choose the third, the contractor shall carry on the work as directed by the official, subject to future adjustment by the proper court, without either parties losing any right thereby.

In purchasing supplies for future use, complete schedules of the materials required for the year will be published, with the amounts of each and specifications for every item. Bids must be received on each item and awards made to the lowest bidder on each; except that if any bidder is low on items aggregating less than \$100 in both the estimate and the amounts used during the preceding year, then these items can be let to the next lowest bidder. Patented articles or others for which competition is impossible can be purchased, providing the person or party furnishing them make an affidavit that the price is as low as that to the most favored customer for similar quantities and qualities under similar conditions.

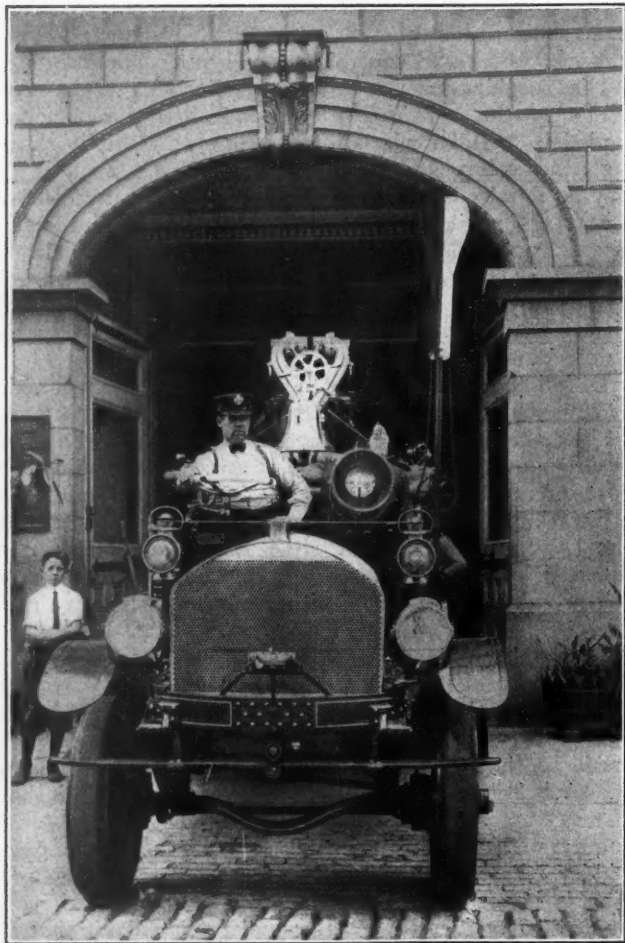
The fifth part provides for the appointment of inspectors to see that the specifications and drawings are literally adhered to. Upon the completion of the contract the inspector in charge shall certify that it has been properly and completely performed, and this certificate, approved by the contracting official, shall relieve the contractor of all further responsibility, except in cases of collusion.

Finally, it is provided that if a contractor violate the act, the contract shall be null and void, although he may recover by law the actual cost of labor and materials already furnished. An official violating the act shall be guilty of misdemeanor. If the contract be awarded, to other than the lowest regular bidder, he can recover as damages full profits for the entire contract.

FIRE APPARATUS SIGNAL.

Ever since the introduction of the silent alarm system in Baltimore the problem that has confronted the police of the traffic squad has been to determine, on sighting the fire engines, whether the engines would go straight on a street or turn out at any particular intersection. In the congested section of the city the keeping of a clear way for the fire apparatus was thus rendered more difficult until one of the engineers of the Baltimore Fire Department invented the signal apparatus which is shown in the accompanying picture.

This signal, which is being tried out on one of the high pressure automobile hose wagons, consists of a large red and white striped paddle and is operated by the man who sits beside the driver of the machine and who also sounds the alarm bell. If the machine is going straight across any intersecting streets, then the paddle



(Courtesy Greater Baltimore Committee.)

DIRECTION SIGNAL ON BALTIMORE FIRE APPARATUS.

remains upright, but if it is proposed to turn either to left or right the paddle is lowered to the side to which the turn will be made.

As it is possible for a policeman to see the paddle at a distance of a city block, he has ample time to clear the way in the necessary direction. Although the signal system has been in use but a few weeks, it has proven so satisfactory that all of the apparatus of the department will be equipped with it.

As this is the only signal apparatus of its kind in the country, it is probable that other cities will adopt it.

REPORT ON ALBANY SEWERAGE

**Intercepting Sewer and Disposal Plant Recommended—
Grit Chambers, Imhoff Tanks and Sludge Beds—
Dilution Problems Involved.**

A report was presented to Wallace Greenalch, Commissioner of Public Works of Albany, by Hering and Gregory a few days ago dealing with the disposal of the sewage of that city, which is at present being discharged into the Hudson river at several points along its water front and is largely responsible for objectionable conditions there.

In general the report recommends the collecting of the dry weather sewage by an intercepting sewer constructed along the river bank, by which it would be carried to a treatment plant on an island at the south-east corner of the city. The new construction would consist of this intercepting sewer, a small pumping station for lifting into this sewer the sewage of a low section known as North Albany; connections between the intercepting sewer and existing outlet sewers; a grit chamber and a main pumping station for lifting the sewage to the disposal works; and finally a disposal plant for partially purifying the sewage.

In studying the water supply as a preliminary to determining the capacity required for the interceptor and the disposal plant, the engineers found that the water consumption has increased in four years from 198 gallons per capita to 242 gallons, having reached 262 gallons during the month of January, 1911. This amount is so excessive and the increase has been so rapid during the past few years that the use of meters to cut down waste is urgently recommended. The maximum consumption at present is about 26,500,000 gallons of water per day, and the authors have concluded that the disposal works should be of sufficient size to handle a dry weather flow of 30,000,000 gallons of sewage per 24 hours. "Works of this size will not only care for the present flow of sewage, and for some years in the future, but can, if prompt steps are taken to reduce the unnecessarily high consumption of water be made to serve for many years without extension."

In determining what degree of purification would be required, the authors of the report studied the flow of the Hudson and the condition of the water therein as it reaches the north end of the city. The drainage area of the river is about 8,200 square miles. Using the populations of the 1910 census, municipalities on the river above Albany and within ten miles of the city numbered five and had a total population of 127,733. The total populations of cities draining into the river within 50, 70, 100 and 133 miles of the city are 290,037, 381,535, 435,693, and 542,174 respectively.

"The condition of a river with respect to its pollution depends not only upon the number of persons whose sewage enters the same but also upon the volume and condition of the water available at all times for the dilution of the sewage. It is therefore neces-

sary to know the minimum flow of the river. Previous to the year 1911 the minimum average monthly flow of the Hudson river at Albany was 1,590 cubic feet per second, which occurred in September, 1908. The pollution of a river, and particularly of a partly enclosed body of water such as the Albany basin, depends also upon the quantity of sewage sludge which is deposited on the bottom and near the shores and is undergoing putrefaction. Under these conditions decomposition of the easily putrescible organic matter causes first a withdrawal of dissolved oxygen from the water. After the dissolved oxygen has been exhausted there is established a reduction of this organic matter accompanied by the evolution of offensive gases which rise to the surface and produce objectionable odors. During freshets the lightest part of the deposited sludge, and sometimes all of it, is washed away and frequently deposited again further down the river. In a tidal stream there is a tendency to transport this sludge at mean tide when the velocity is greatest and to deposit it at the ebb or flow when the velocity is least.

"From observations made in many rivers it has been found that a flow of well oxygenated river water of from 3 to 6 cu. ft. per second is capable of diluting the sewage from a population of 1,000 to a degree that will allow the oxygen in the river water to oxidize the easily putrescible organic matter in the sewage and thereby prevent the water from becoming offensive, provided the velocity of flow is sufficient to prevent accumulations of sewage sludge on the bottom of the river.

"Assuming that, under the river conditions prevailing at Albany, it would require a flow of 4 cu. ft. per second to inoffensively dilute the sewage from a population of 1,000, then an average minimum flow of 1,590 cu. ft. per second should suffice for a population of about 398,000, while a minimum flow of only 1,132 cu. ft. per second would properly dilute the sewage of but 283,000 persons.

"It is therefore apparent that the combined population of the city of Albany and the municipalities located on the river and its tributaries above the city is approaching a point where it may, at times of very low water, be expected to give rise to objectionable conditions."

Observations and analyses were made during 1911 by George E. Willcomb, chemist at the water filtration plant, from which it appeared that the greatest depletion of oxygen in the river is usually near the bottom, which is generally due to exhaustion by the deposited sludge. There were also a number of cases where oxygen was found to have been more exhausted near the surface than below, which may have been partly due to floating particles of organic matter. These facts apparently indicated the desirability of removing from the sewage both the lighter suspended matters which would float on the surface and the heavier suspended matters which would form sludge deposits.

The discharge of sewage into the river by cities above Albany creates a pollution which is quite notable during times of minimum flow in the river, but which is appreciably greater at the lower boundary of the city. The present objectionable condition of the river at this point can be materially improved, the engineers report, by removing the suspended matters from Albany's sewage previous to discharging it into the river; and temporary beneficial results can be effected by a removal of the sludge deposits along the west shore of the river; but even then the water in the river may, at times of low flow, continue to show evidences of serious pollution unless similar action is taken by the mu-

nicipalities located on the banks of the river and its tributaries above the city of Albany.

The main intercepting sewer will vary in diameter from 2 feet to 5 feet 6 inches and be laid at such elevation as to intercept the dry weather flow in the existing outlet sewers. It is calculated for a capacity when running full of 60,000,000 gallons per 24 hours. Should this sewer become overtaxed another intercepting sewer laid at a higher elevation can be built to relieve it. It is recommended that any new sewers to be built should be as far as possible designed on the separate rather than on the combined system.

For a site for the sewage disposal works the city has acquired an area of 75 acres on Westerlo Island, which is situated in the Hudson river opposite the southeast corner of the city and separated from it by Island creek. Owing to the already polluted condition of the river and to its considerable volume it is not considered necessary at the present time to go to the expense of providing for a high degree of purification. The engineers recommend grit chambers and coarse screens located above the pumping station, and settling tanks and sludge drying beds between the latter and the river outlet. The settling tanks are designed to be of the Imhoff type. "The effluent from such works will be free from suspended matters which would float on the surface of the water and be displeasing to the eye or which would settle on the bottom and banks of the river and form objectionable sludge deposits. The disposal works have been so designed that sprinkling filters can be added at some future date should it then be found necessary to provide for a higher degree of purification."

Settling tanks of the Imhoff type are said in the report to be now under construction or completed at Batavia, N. Y., Philadelphia, Pa., Rock Hill, S. C., Atlanta, Ga. (three works), Chambersburg, Pa., Winters, Cal., Winchester, Ky., and elsewhere.

The settling tanks are 16 in number, each 33 feet wide, 98 feet long and 27 feet 2½ inches deep from the water line to the bottom of the sludge chamber. Each tank would have one large settling chamber and four sludge chambers. The dimensions are such that when all 16 tanks are in service and handling an average daily flow of 30,000,000 gallons, the average period occupied by the sewage in passing through the settling chambers will be three hours. The sludge chambers at the bottom are designed to hold an accumulation of sludge for a period of about 6 months.

There are 32 sludge drying beds having a total area of about 66,560 sq. ft. They consist of layers of graded gravel or broken stone, the coarsest material being placed at the bottom and the finest at the top, with a thin layer of coarse sand spread over the top surface. The average thickness of each bed is about 12 inches. The bottom of the excavation for each bed will be graded into ridges and valleys and a 3-inch drain pipe with open joints be laid in each valley. All the drains from each set of eight beds discharge into an 8-inch main drain which in turn discharges into the outfall conduit.

The sludge would be removed from the sludge drying beds in small cars running on narrow gage railway tracks laid at the level of the bed surfaces. These tracks connect with a main track extending along the southerly end of the drying beds. The cars are loaded by hand and pushed along the tracks from the sludge drying beds to the main track, and thence along the main track and up onto the levee to the point of final disposal. Being entirely inoffensive, the sludge can be used for filling, ample low ground for which is found adjoining the disposal works.

ROAD WORK IN MASSACHUSETTS*

One and a Half Million Gallons of Bituminous Material Used in a Year—Methods Employed— Surface Treatment.

The Massachusetts Highway Commission during 1911 was successful in applying some of the extremely heavy bituminous materials with a pressure distributor, the pressure being provided by an ordinary air pump operated by steam from the traction engine. This has been applied in grouting as well as in surface treatment, and it seems probable that in the future it may be possible to use some of the more lasting bituminous materials containing large quantities of asphalt by this method and thus secure more permanency in both construction and surface treatment.

During the year the commission used over 1,500,000 gallons of various bituminous materials in the construction and surfacing of its roads, including various tars, tarvias and asphaltic oils sold under different contract names. The chemist for the state Board of Health, H. W. Clark, reports that from a laboratory point of view the materials were rather better during 1911 than formerly; that there was, however, altogether too much variation between the different lots of what purported to be the same materials, sold under the same trade name, and that altogether too many of them frothed badly when heated. This lack of uniformity in the materials is largely responsible for the fact that while some of the roads on which these materials were used are now in very good conditions, others are not. For instance, one asphaltic oil had a viscosity of 390, while an oil sold under the same name and used at another point had a viscosity of 540, and still another shipment had a viscosity of 590. Another asphaltic oil varied in viscosity from 240 to 340.

Some of the sections that were treated with oil or tar two or three years ago have had to be retreated. On the other hand, some roads which had considerable automobile travel were treated with a surface coating of asphaltic oil three years ago and are now in very fair condition, nothing having been done to them since except to patch the holes.

It now seems to the commission that a surface coat of asphaltic oil would not prove to be economical or satisfactory on a road which has a large amount of heavy teaming, though it is satisfactory, or has been up to the present time, on roads which have a large amount of high-speed automobile travel, with but few heavily loaded teams.

The state highway in North Beverly was given a coat of heavy asphaltic oil, one-half gallon to the square yard, in the summer of 1910, but it did not wear satisfactorily. It began to wear out first on the north side of the road, where heavily loaded ice teams traveled. The other side of the road, where they returned empty, remained in fairly good condition for a longer period of time. By the end of the season the oil was pretty well ground up and was almost entirely gone over the traveled portion in the center of the road. A large number of heavily loaded ice teams passed over this road daily, starting at the ice houses beyond North Beverly. This piece of state highway for many miles beyond, on the road to Newburyport, was treated in exactly the same manner with the same quality of oil. The whole road beyond the ice houses has been and is now in entirely satisfactory condition, showing conclusively that it was the teams cutting through the oil and down to the stone which churned it up into mud and then carried it off of

the road. This year a reasonably satisfactory road was secured by applying a coat of one-quarter of a gallon of light asphaltic oil to the square yard. This light oil apparently fluxed back a part of the oil left on the road.

In general, other failures, not due to excessively heavy team travel, have been due to the qualities of the materials themselves, though in some cases they have been due to faulty application or to the fact that the road was not properly cleaned before the oil was applied.

It seems probable now that quite a few miles of the roads which had a surface treatment three years ago will only require extensive patching to carry them through another season, and that on others a little patching and a coat of one-quarter of a gallon of asphaltic oil to the square yard, instead of the half gallon which was first applied, will be sufficient to carry them through two seasons more.

MOTOR STEAM FIRE ENGINES.

Commissioner Joseph Johnson of the New York Fire Department has advertised for proposals for furnishing twenty-eight second size steam fire engines propelled by traction. The engines are to be similar to the ordinary horse-drawn type. The tractors are to be of the two-wheeled type driven by direct drive or by electricity.

The engines are to be second size improved vertical double pump and cylinder steam fire engines. At the official pumping test the engine must deliver 700 gallons of water per minute against a pressure of 125 pounds for one hour without showing defects or undue heating. It must also discharge 420 gallons per minute against 200 pounds pressure for one hour; both pressures to be recorded on a gauge on the discharge side of the pump.

The tractor, if of the direct drive type, must be capable of a speed of 20 miles per hour, maintained for one hour. The tractor must be quickly and easily detachable by means of a fifth wheel device. The upper part of this must be rigidly attached to the engine. Rotation of the fifth wheel is by means of a worm and sector driven from the main gear box and controlled by a lever. Axle and wheel construction is of the center wheel type. Motor is four cylinder, four cycle, water cooled. Gasoline capacity is 15 gallons.

Considerable latitude is allowed in the type of clutch by means of which the power of the motor is transmitted to the transmission gears and thence to the traction wheels. The transmission gear is a sliding gear type of selective design. The axle is 2½ by 4 inches. The wheels are to be equipped with internal driving gears. Rubber tires are of cellular type 6 inches wide and 38 inches in diameter.

If the tractor is of the electrically driven type it conforms to the direct drive type above described, so far as the specifications are applicable to it. A framework of 6-inch steel carries two semi-elliptical springs. The wheels are 36 inches in diameter, constructed of dished steel plates. Axles are of truss construction. The motor is 40 horse-power, four cycle, water cooled. The electric generator is of standard design. Power is applied to each wheel through electric motors, the motors being enclosed in and geared to the wheels. Each motor is three horse-power capacity. Radiator is honeycomb type. The control of the gasoline engine is through foot throttle, and that of the motors through hand-operated controller so arranged as to reverse the direction of rotation of motors and to group motors for either heavy pulling or high speed. Tires are to be dual, 4 by 36 inch solid rubber wireless, guaranteed for 7,500 miles to be run within three years.

*From the 1911 Report of the Massachusetts Highway Commission.

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CHANGE OF ADDRESS

Subscribers are requested to notify us of changes of address, giving both old and new addresses.

Contributions suitable for this paper, either in the form of special articles or of letters discussing municipal matters, are invited and paid for. Subscribers desiring information concerning municipal matters are requested to call upon MUNICIPAL JOURNAL, which has unusual facilities for furnishing the same, and will do so gladly and without cost.

AUGUST 15, 1912.

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Give Praise Where It Is Due.

Indiscriminate condemnation of city officials is as demoralizing as indiscriminate praise would be; and yet it has become a common thing to expect—or pretend to expect—that no city official is honest, competent or earnest in the performance of his duties. We recommend to the thoughtful consideration of all, officials and citizens, these words from a recent address of Mayor Henry J. Arnold of Denver, Colo., to the Board of Advisers (representatives from commercial and civic organizations):

I believe it to the interest of good government that from time to time, as I report to your board, I should make special mention of those whose services have been appreciated by the people and of whom I have had letters and words of commendation. The recognition of service is always an incentive to better work, and, while this will not be made as a matter of personal preference, coming to me as above stated, theirs will be the only names used in making this report from time to time. It is my pleasure at this time to mention the following: Mrs. Seraphine Pisko and Dr. H. W. Purinton of the board of charities; Police Officer Thompson, in charge of street traffic at Colfax and Broadway; W. H. H. Cranmer, commissioner of highways, and William Geary, superintendent of street sprinkling.

There may, of course, be the danger that friends of certain officials will take advantage of such an opportunity to bring them to favorable notice; but personal

and political enemies and those having a general grudge against municipal officials are so demonstrative in their criticisms that the balance would still probably remain on the wrong side of justice.

EXCESS CONDEMNATION AND ASSESSMENTS.

During the past year or two we have several times presented the arguments advanced by those interested in city planning in favor of what is known as "excess condemnation"; that is, the acquiring, by a city which is making an improvement, of adjoining land which is not required for the improvement itself, with the object of both controlling the development of this property and more especially of profiting by the appreciation in value which is expected to follow the carrying out of the improvement.

Apparently, however, all who have studied the matter are not convinced of the desirability of this plan, as was shown by the article published in our issue of August 1st in which it was claimed that its application in Massachusetts, where a constitutional amendment permitting cities to adopt the plan was voted last year, would not result in the expected advantages. The author of this paper referred to an English illustration of his belief that the method has not been a success there either. In this illustration the amount realized by the sale of the surplus land exceeded the cost of the improvement by about \$590,000; which profit, however, was wiped out by interest on the outlay during the several years before the land was disposed of. It seems to us that in claiming that this disproves any advantage from the excess condemnation plan the author has been hardly fair, since he admits that the entire cost of the improvement was almost, if not quite, met by such sale, whereas had there been no excess condemnation the only returns of any kind to offset the cost would have been assessments on the benefited property, and it is seldom that these assessments in a case of this kind equal the cost. Moreover, in a great many cases a newly opened or widened street is of benefit to considerably more property than would be taken under condemnation proceedings, and the property so benefited but not purchased by the city should be assessed, regardless of whether the excess condemnation plan was adopted or not.

In another paper in the same issue another prominent student of city planning affairs advanced at some length and with considerable detail the theory that wherever there is a local benefit from a municipal improvement, there should be local assessment for the same. In theory, certainly, there would seem to be little to object to in this plan, although its practice would, we fear, be found as difficult and give rise to as serious discriminations as is the taxing of personal property in most cases where it is tried.

Should the latter system, however, be developed as fully as seems practicable and the assessment for benefits be extended for some distance beyond the immediate abutting property, and should such abutting property be acquired by excess condemnation methods, the city would certainly be better off financially than if excess condemnation was not employed; unless we assume that the difference in profits between private and municipal handling of the excess property would be greater than the difference between the actual benefits to the property and the assessments which would be made therefor.

In addition to the financial consideration, there is the additional most important advantage that the city can, by acquiring control of the adjacent property, insure that it will not be so developed as to detract from the value or beauty of the improvement in question.

NEWS OF THE MUNICIPALITIES

Current Subjects of General Interest Under Consideration by City Councils and Department Heads—Streets, Water Works, Lighting and Sanitary Matters—Fire and Police Items—Government and Finance.

ROADS AND PAVEMENTS

Narrow Streets Tested by Commissioner.

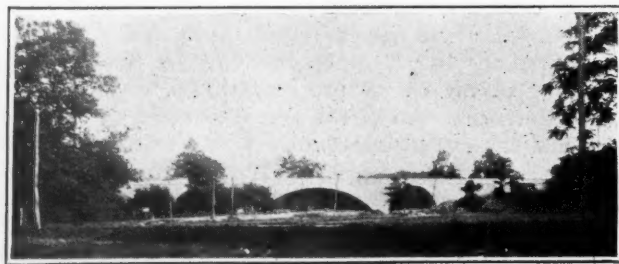
Pueblo, Col.—For the purpose of demonstrating his theory to the effect that 30-foot streets in the residence districts are sufficiently wide and that they not only improve the appearance of property but reduce the cost of maintenance, C. A. Lannon, commissioner of highways, escorted a party of prominent North Side property owners to the corner of Nineteenth and Greenwood streets one afternoon last week, where a number of tests were made. The streets were staked off at the 30-foot width, after which automobiles maneuvered and passed, showing that such is possible under the conditions advocated by the Commissioner. While it was impossible for an auto to turn without backing in the 30-foot street, it was cited that such is against the law anyway, and that at street intersections, the only places where they are permitted to turn, it was easy for autos to make the turn. The final decision regarding the change will be left to the property owners of the North Side.

Long Stretch of Road Finished.

Schenectady, N. Y.—Automobile tourists will be pleased to learn that the Pittsfield to Lenox (Mass.) new macadam road was opened last week. No longer will the motorist be inconvenienced by having to travel over a poor earth road for four miles between these two centers. William J. Fallon, touring director of the Schenectady Auto Club, was notified by wire at the Edison Hotel touring office that this road is opened. In the wire Luke J. Minahan of the Wendell Hotel touring office, Pittsfield, states that this new stretch now completes the macadam from Pittsfield to Springfield via Jacob's Ladder. From the bridge at East Greenbush the macadam is being repaired for seven miles, but the highway superintendent is doing the work in such satisfactory and convenient manner that auto traffic is not impeded. This work will be finished this week and will give the autoists a fine stretch of macadam from Schenectady right through to Fishkill Landing, a distance of 110 miles. Thence the ferry is used to Newburgh and an excellent drive from the latter point right to New York City, passing through Orr's Mills, Tuxedo, Suffern, Nyack, Tarrytown, Yonkers and New York City.

Good Roads Building in Boulder County.

Longmont, Colo.—The subject of good roads seems to be occupying a great deal of attention just now, and it might be interesting to know how Boulder County is solving the problem. After making the roads of the county the best in the State, the County Commissioners have started to build their bridges so they will last for all time to come. One picture shows the construction of a bridge one-half mile southwest of the city built entirely of iron and concrete. The other picture shows a part of one of the many graveled roads in this vicinity, a plain country road, the delight of the many automobilists who travel this way. The crops one may see on each side of these roads are a wonder and a delight to the eye.



Courtesy Denver "Republican."
IRON AND CONCRETE BRIDGE NEAR LONGMONT, COLO.

Concrete Road Laid by City Employees.

St. Paul, Minn.—Polander road, a scant quarter of a mile of driveway, seventeen feet wide, running from a point on the Point Douglas or Hastings road, about two miles from Highwood station, almost directly south to the city limits, will go down in the history of Ramsay County roadmaking as a precedent in two respects. In the first place the road is the first piece of concrete road in the county and the first in the State outside of the city streets of Bemidji and East Grand Forks. Secondly, the road in its completed state furnishes a practical example of the saving that may be made to the city, and thereby to the taxpayer, by having road work and paving done by day labor under direction of the Commissioner of Public Works instead of by contract, as in previous years. The actual cost of the work from the first load of gravel and sand, laid as a foundation, was dumped on the ground June 22 until the bars were taken down before the hardened concrete highway July 3, was \$1,365, or \$1.30 per lineal foot. The original estimate prepared by the city engineer for the Board of Public Works, based on estimates of actual cost and an allowance of about 10 per cent. for contractors' profit, was \$1,907.50. The actual saving on the one piece of roadway was \$542.50, or approximately 28½ per cent.

First a coat of fine gravel and sand was laid to and rolled to a depth of about six inches. On top of the sand and gravel foundation, however, the real road, the concrete and surface was placed. The concrete covering is five inches deep. The surface was left rough. The road itself is 12½ feet in width with cobblestone gutters two feet wide. The gutter carries the water into catch basins and thence under the Newport road into Fish creek.

The fact that the regular city asphalt repairing crew, temporarily idle on their regular work, was shipped to the Polander road improvement saved a considerable portion of the cut on the estimates. Another item of economy lay in the fact that much of the necessary gravel and sand was found on the right of way.

A third item of saving lay in the inspection which was done by inspectors regularly employed by the city.

Road Built in a Day.

Normandy, Tenn.—About a mile of road, well graded and graveled, was constructed in a day near Gould. Several hundred loads of gravel were hauled. About two hundred persons enjoyed a free barbeque, dinner and supper being served on the lawn of Hon. W. C. Thronesberry. The road built passes through the farm of Col. R. S. Brandon, who has a national reputation as an exhibitor of champion corn, and is a part of an entirely new road from the Riley's Creek bridge to the Dalby ford. The building of a steel bridge across Duck River is a part of the plan. The road will be a model as to location and construction. To avoid steep grades, it will pass through fertile fields, and the grading and surfacing will be a great improvement over the best roads of this section.



Courtesy Denver "Republican."
STRETCH OF GRAVEL ROAD IN BOULDER COUNTY.

Paving Denison Streets.

Denison, Tex.—The actual work of extending the East Main street paving from its present terminus near the Union Station east to include the intersection of Crockett avenue, was begun last week. Thurber brick is to be used. In addition to this contract, the paving of North Houston avenue is moving rapidly, which will mean that the entire business portion of the city will soon be included in the paving district.

Name Boulevard for Alfred Burdsal.

Indianapolis, Ind.—The Board of Park Commissioners has taken official action toward naming the proposed boulevard and parkway in Twenty-fourth street in honor of Alfred Burdsal, from whose estate the board has received \$225,000 for the development of its work. The new boulevard and parkway will be known as the Burdsal parkway and will be the principal entrance to Riverside Park. With the exception of a few scattering lots, the board has acquired, either by purchase or contract, all of the ground necessary to widen Twenty-fourth street to a uniform width of 175 feet from the Fall Creek parkway to Riverside Park. A wide driveway will be provided, while the remainder of the strip will be given over to a parkway to be embellished with grass plats and flower beds. Members of the board say it will be impossible to undertake the construction of the new boulevard and parkway this year, but that in all probability it will be taken up in 1913.

Mayor Destroys Sidewalk.

Arma, Kan.—Some time ago the Council of Arma, over the protest of Mayor Morgan, let contracts for concrete walks around the city park. The contractor was at work when the Mayor approached and took a look. The sight of public work ordered against his will angered the executive. Near him was a shovel. He seized it and jumped into a big block of soft cement. In a few minutes he had ruined the walk with boot and shovel. The president of the Council and the contractor appeared before the county attorney and swore out a warrant, charging the Mayor with felonious and malicious destruction of public property, which is punishable by imprisonment in the State penitentiary.

Movement for Better State Roads.

Williamsport, Pa.—The spirit of good roads has taken hold of Lycoming County with a vim, due largely to the activity injected into the situation by the Central Pennsylvania Motor Association, which has employed an agent to inspect all country roads and to take up with the supervisors of the respective townships all cases where repairs are needed. The campaign has a particular feature in the removing of cross-gutters, in which direction the movement has been quite successful, overcoming the prejudice of the country folk, who at first contended that cross-gutters were not only necessary to carry off the water, but that on the hills they provided necessary "rests" for the horses. George Fisk, agent for the motor association, has shown the farmers how much easier it is to draw a load up a hill that has no "thank-you-ma'ams" in it, and now the drivers carry blocks with which to "rest" the wheels of the wagon if it is necessary to stop on a hill. The Supervisors of Eldred township, which lies near the city, have begun to eliminate the bumps in the road from Warrensville to Williamsport, a distance of nine miles, and it is now as smooth as a race course. Another feature of the work being done by the Central Motor Association is to furnish every owner of an automobile with "complaint" blanks, the purpose of which is to obtain information concerning defects in the roads. Quaker Hill, a famous grade in Eldred township, has lost a lot of its terror to both teamster and motorist because of the excellent repairs made upon it this summer by the road supervisors. In Nippenose Valley, one of the most picturesque localities in the county, where the material is limestone, the roads have received good attention, and with a system of "piking" the surface of the highway is as smooth as macadam, so that it stretches out like a white ribbon in the valley, over which it is a comfort to ride and over which heavy loads can be hauled with ease. Along Loyalsock Creek, where more or less sand is encountered, a force of work-

men are overhauling the road, making this picturesque driveway accessible to all, much to the joy of a lot of persons who heretofore were fearful of the drive because of its roughness. The State workmen have done a lot of commendable work on the main trunk roads between Williamsport and Jersey Shore on the west and Muncy on the east. All cross-gutters have been removed, the roads crowned in the center and deep gutters for draining dug along the sides. The change wrought in these roads is remarkable, and all at a price not exceeding \$400 a mile, whereas the State macadam roads built in this section in the half dozen years back have cost more than \$9,000 a mile. These are now in such a condition of disintegration as to require resurfacing, except the Salladasburg road, which was only finished last fall. The motorists seem to prefer the dirt roads that have been smoothed with the scraper to the hard and dusty macadam highways. In addition to the repairs being made to the roads, the motor association is placing accurate signboards at all cross-roads throughout the rural sections.

Break Ground for State Highway.

San Mateo, Calif.—The first ground for the \$18,000,000 State highway was broken on El Camino Real at a point a few miles north of Burlingame August 7. The event was celebrated by a grand barbecue under the auspices of the San Mateo County Development Association, at which the delegates to the Pacific Coast Highway Congress were special guests of honor. The breaking of ground for the new boulevard has an important bearing on the meeting of the Highway Congress, as the delegates convened for the purpose of launching a scheme to build a highway from Vancouver, B. C., to San Diego. The State highway is only a part of their scheme. The delegates, composed of leading men of British Columbia, Oregon, Washington and California, came to the convention in 150 automobiles. Among the San Francisco men who are interested in the entertainment of the good roads enthusiasts and who are co-operating with the association in formulating plans for the San Mateo County Day are Leslie E. Burks, George Cameron, A. G. Briggs, J. A. Marsh, W. H. Hughson and Percy G. Walker. The work that commenced August 7 will be the building of a stretch of road 6.4 miles long running along the course of the present El Camino Real from South San Francisco to Burlingame. In San Mateo County the State highway will follow El Camino Real, but the contracts for the other portions of the work have not yet been awarded.

Street Surface Experiment.

Lynn, Mass.—Several thousand square yards of bituminous coating have been laid over the Hassam pavement on Summer street, between Shepard and Vine streets, as an experiment. Street Commissioner McPhetres says this treatment costs 10 cents a square yard. If the expected results are attained it will doubtless be used in renewing other wornout smooth paving in different sections of the city.

General duPont Builds Sample Road.

Georgetown, Del.—General T. Coleman duPont, having been granted permission by City Council to lay a test piece of road from the public square, on South Bedford street, to run in the direction of the duPont headquarters, has commenced the work. It is understood that the piece will be built as far as the residence of Dr. Caleb R. Layton. The sample is what is known as the "sand-oil road," and according to information is to extend from curb to curb. The small strip being built on Bedford street, it is understood, will be used in the construction of the Boulevard, providing General duPont decides to continue the work.

Progress Being Made on Hibbing Paving.

Hibbing, Minn.—Coons & Butler, who have the job of paving twenty-five blocks of streets in the business section are making fine progress. The excavation work has been completed on nine blocks, seven blocks of concrete has been laid and four blocks of the paving will soon be completed. Beginning next week the contractors expect to pave at the rate of about a block in a day and a half. At this rate the contract will be completed by Oct. 15.

SEWERAGE AND SANITATION

Rat Plague Precedes Human by Two Years.

Mobile, Ala.—That there be no need for alarm over the possibility of an outbreak of bubonic plague in Macon city was the statement made by Dr. Charles A. Mohr, city health officer, to the Board of City Commissioners. If the plague now exists among the rats of the city, Dr. Mohr said, it will be anywhere from two to five years before it will appear among human beings, provided, of course, it should ever be transmitted from Mobile rats to Mobile people. This statement was the first made by Dr. Mohr after his return from the health conference in New Orleans. The doctor also told the commission that it was decided in the health conference in New Orleans that the rat plague had reached that city from England, where it has existed for two years among rodents. The infected rat examined by the government bacteriologist came from Stuyvesant docks, at which no vessel from any tropical port has landed since the discovery of the disease in the West Indies.

Important Storm Sewer Completed.

Altoona, Pa.—It cost the city of Altoona \$16,291 to construct the concrete sewer in Maple avenue from Twenty-seventh to Thirty-first street, through which to divert the water of Ginter's Run to the channel of Mill Run. The final estimate on the work has been submitted to the City Controller by City Engineer Engstrom, and the contracting firm, Aug. Fogel & Co., of Hollidaysburg, were paid the balance due. The funds to pay for this work were taken from the sewer loan, floated in 1910, and the cost exceeded the original calculations, owing to the fact that there was considerable extra work to be done, such as laying sidewalk and curb where it was necessary that it be taken up in the work of constructing the sewer. The sewer is 1,901.1 feet in length and the contract price was \$6.63 per foot, making the cost of the sewer itself \$12,604.29. In addition there were the following items of expense connected with it: Intake at Twenty-seventh street, \$372.25; outlet at Thirty-first street \$314.75; sidewalk, \$1,270.40; fourteen grate inlets, \$371; pumping and drainage, \$429.56; sanitary sewer, \$474.90; water and gas mains, \$348.47; 588.4 feet of cement walk, \$105.91; total, \$16,291.53. The new channel has had a thorough test during the past month and it has been found adequate to carry away the water from Ginter's Run, even in times of heavy rain.

Sanitary Sewer System in Operation.

Chambersburg, Pa.—Chambersburg's great sanitary sewer system, than which there is none better in the State or anywhere, was put into actual use on August 1, 1912. The disposal plant on the Ross farm, now owned by the borough, about a mile and a half from Memorial Square, southwest of the town, is the last word in sewer construction. The great main trunk line pipe, from the town, 24 inches in diameter, can pour 39,000 gallons of sewage an hour into the disposal plant, or nearly 800,000 gallons a day, dumping this liquid into collecting wells. From these wells the pumps raise the sewage about 16 feet into the disposal plant proper. These pumps act automatically;



Courtesy Franklin Repository, Chambersburg, Pa.
SPRINKLING FILTERS UNDER CONSTRUCTION.

when the sewage reaches a certain stage of depth the pump begins to work and when the level set is reached it quits. There are three pumps there, two electrically driven and one a gasoline power pump, so that while only one pump will be used as a rule, there are always two in reserve for any emergency. From these pumps the sewage goes into the Imhoff tanks, set in pairs. These tanks are claimed to be the only ones of the kind in the United States, but others are being installed. When the amount of "sludge" becomes too great for the capacity of these tanks, two more can be added, later two more, and even later two more, so that for many decades to come, unless the town grows beyond all expectations, there will be a sewage disposal plant equal to the demands, for taking the two as taking care of a population of 12,000, the eight would take care of 48,000. From the Imhoff tank the sewage goes to the dosing chamber, thence to the great filter bed, a picture of which before it was finished and covered over is shown herewith. Thence to the secondary tank or bed and finally to the creek.

Sanitary Law Passed to Protect Public.

North Yakima, Wash.—Pursuant to its determination to uphold the sanitary standard of the city, the City Commission has passed an ordinance requiring that proprietors of soft drink, ice cream parlors and soda fountains and all dispensers of drinks of other sorts, shall wash in running water, and sterilize after using, all glasses, spoons, utensils and dishes used. Exception is also taken to the restaurant waiters' custom of picking up butter pats with their fingers, instead of using a knife, fork or spoon.

WATER SUPPLY

New Main Doubles Former Pressure.

Jersey City, N. J.—Now that all the obstacles in connection with the new 30-inch water main from Arlington to Bayonne have been overcome, the additional supply of water has been turned on in its full force. With the new main in commission the city will have a daily supply of water exceeding 30,000,000 gallons at double the present pressure. The contract which the city made on June 1 to extend a 16-inch water line to the Constable Hook factory section is now completed, and with this additional line and the extra pressure all the manufacturing plants in that section will have an ample supply of water for years to come. It may be necessary to make a further extension of the 16-inch line, but this, says Mayor Cronin, may not be necessary for some time to come. Coincident with the completion of the new 16-inch main the old 12-inch one has been removed and is now being laid by the city's Water Department employees in the Bergen Point section, connecting the present water lines on Linnet, Oak and Orient streets. This work will be completed in a few weeks. It is then the intention to tap into the second supply main at Linnet street and Avenue E and at Fifth and Evergreen streets. This will more than double the present supply to the residents and manufacturing plants south of the Central Railroad bridge. A 23-foot vault is now being constructed at Twenty-second street and Avenue E, in which will be placed a meter registering the amount of water at that point. Then it is proposed to remove two of the meters from the Constable Hook section from the old 12-inch line, which will be abandoned and removed. These two meters will be placed, one at Linnet street and Avenue E and the other at Fifth and Evergreen streets to measure the water purchase at these points. With the additional water supply, low pressure on the upper floors of Bayonne homes and factories will be a thing of the past.

Saves Fuel by Reducing Pressure.

Roswell, N. M.—During the past four years the city water works has been carrying a pressure of seventy-five pounds per square inch on the mains. After considering the matter, recently it was decided that a pressure in excess of fifty pounds was unnecessary and the change was accordingly made. The water works officials were much pleased to find that the reduction in pressure had effected a saving in fuel of 25 per cent.

Water for Western New York.

Batavia, N. Y.—Richard W. Sherman, of Utica, chief engineer of the State Conservation Commission and a brother of Vice-President Sherman, with three other engineers of the commission, have been in Batavia investigating a scheme which the State has for supplying all the cities and villages in the western section of New York State east of the Niagara River and west of Rochester, and including Niagara Falls with pure clear water. It is probable that a storage reservoir will be located at Linden which will hold sufficient water to supply 100,000 people. About 100 miles of pipe line from Linden would pass through Batavia and reach all places in the section considered. The water in the Little Tonawanda Creek at Linden is all spring fed. Chief Engineer Sherman said the charge to each municipality would be adjusted to the relative cost of supplying water to each, but on a basis of approximately what the cost would be to the State. In other words, the charge would be so regulated that the State would be reimbursed for the construction of the system by each municipality, according to the amount of water it uses. The expense to each municipality of reimbursing the State would be spread over a long period, perhaps thirty years. To carry out the scheme of establishing this gigantic reservoir at Linden an engineering corps has been located there, and it is hoped before winter weather sets in to progress so far as to be able to determine the practicability and probable cost of carrying out the scheme. The Conservation Commission cannot carry out the scheme without further action by the State Legislature, and whether such authority shall be asked for the coming winter depends largely upon the result of the investigation now being made.

Municipal Control Proves Successful.

Council Bluffs, Ia.—Municipal ownership has received a big boost in western Iowa because of the successful year which the Council Bluffs city water works has just closed. The annual report, just issued, shows that in addition to paying off the interest on the investment, spending \$140,000 in betterments and repairs, the city has cleared approximately \$60,000, which sum will be set aside to assist in paying the bonds when they fall due. Enemies of municipal ownership have been converted. The Council Bluffs water plant was built nearly thirty years ago. Since then its owners have received regular dividends of about 15 per cent. and more, while practically nothing has been expended for betterments and repairs. In fact, much of the antiquated machinery which was installed when the plant was constructed was still in use when the city took over the system. The fight for possession of the water works was waged for eight years. The company exhausted every legal technicality to maintain its hold on the profitable business, but advocates of city ownership fought the battle to a successful finish and in July, 1911, the system was turned over to the city. Council Bluffs issued long-time bonds, which were sold, and the money received from the sale was paid over to the water company and the city took the plant. Simply the city's credit was used. And the first year's profits are so remarkable that the citizens see in the near future that they will have sufficient cash with which to pay off all indebtedness, thus securing ownership of the entire system without the expenditure of a single cent. New settling basins have been constructed and big storage basins are being built. Many miles of new pipes have been laid and repairs and betterments are being made in every department of the system. And all without a cent's increase in rate or charges to the citizens.

City Owned Water Plant Makes Profit.

Cedar Rapids, Ia.—During the year ending June 30 the city water works made a profit of \$23,426.91, according to the report of the water trustees, E. D. McCartney, E. R. Moore and George McDonnell. It includes the writing off for depreciation on meters for nine years, for depreciation on office furniture and fixtures for nine years and for patent hose and nozzles turned over to the city Fire Department. Since the city took over the plant, nine years ago, no depreciation had been written off until this year, hence the depreciation for nine years.

New Main to Green End Pond.

Newport, R. I.—The laying of a new main, of 16-inch iron pipe, from the Paradise pumping station to the north, or Green End, pond is nearly finished. This has been going on since the job of laying the big main to Fort Adams roads was finished, in early June. When the new main is in action all the water will be filtered in the new filters. Under the old arrangement the water from Paradise went through a small filter at that pond and then pumped into the distributing reservoir. This made it somewhat different from the water from Easton's ponds. The new plan will make it necessary to pump the Paradise water twice, once into the Green End pond and again with the distributing reservoir, but all the water will then be put through the big filter and all will be the same when supplied to consumers. The water used up to this time has all come from the Easton's ponds and the south is now quite low, while the Green End is well down also. The past two months have been a heavy drain on the supply and people would be surprised to see the great quantity of water furnished daily to Newport. It is a question if the city has ever seen two such dry months as June and July were, and it is certain that the water works has never supplied so many gallons to consumers as it has during these two months. The big pump has been taxed to its capacity to keep the distributing reservoir full.

Over \$50,000 Made by City on Water.

Muskogee, Okla.—The Water Department of the city made a profit of \$53,239 last year, besides the city's use of water, according to a statement which Mayor Miller has just prepared. The report shows that the total revenue received from water rates for the year ending June 30 was \$87,497, and that the city use of water amounted to approximately \$43,000. The cost of maintenance was \$34,258. The expenditures include all of the operating costs, meters, repairs, supplies, wages and all other general running expenses. The surplus received has been put back into the plant in the laying of new mains and the purchasing of new machinery, Mayor Miller said. The value of the plant at the end of the year was \$817,889.

STREET LIGHTING AND POWER

Lynn Saves \$21,240 in Five-Year Contract.

Lynn, Mass.—By a free and frank discussion of the subject Mayor Connery and members of the City Council, with their lighting expert, Professor William L. Puffer, and representatives of the Lynn Gas and Electric Company, reached an agreement regarding the lighting of the city's streets for a term of five years by which the city will save \$21,240, and besides get a greatly increased volume of illumination from improved lamps. The city will pay the company \$82.40 a year for four ampere arc lights, \$15 for incandescents of 60-candle power, and \$70 for 6.6 ampere arc lights burning until midnight on the great white way zone. The lights are to burn on the moonlight schedule, which, however, Professor Puffer was in favor of abolishing.

Boonville's New Concrete Dam.

Boonville, N. Y.—The Board of Light Commissioners, with Superintendent Bridgman and Mayor Noble, made a trip to the electric light place at Denley to see the last shovelful of concrete put in the new dam. This concrete dam was commenced two years ago, a part of it being built then and another part last year. During the winter everything was made ready to complete the work as soon as possible this summer, but in the high water in the spring a part of the old wooden dam was carried away, and it was impossible to get control of the water till the dry weather set in and lowered the river. Then the old wooden dam was repaired, and a few weeks ago a force of men began work on the connecting link of the concrete dam, which is now finished. It is a strong, well-built dam and ought to stand for many years to come, and is expected to be the means of giving Boonville the best and cheapest electric lights of any town in the State.

FIRE AND POLICE

Police Commissioner Advocates City Brick Factory.

Dallas, Tex.—It is not improbable that Police and Fire Commissioner F. W. Bartlett will recommend to the City Commission for its consideration a report of his inspection of the Minneapolis police farm. He was profoundly impressed with what he saw at the 100-acre tract operated just outside the city limits of the Minnesota metropolis, particularly the brick manufacturing plant, which has a daily capacity of many thousands of bricks. The kilns are operated entirely by city prisoners, under the direction of experienced brick manufacturers, and the entire output is utilized in the construction of municipal buildings. Mr. Bartlett said he visited a tuberculosis sanatorium built of the city farm brick. The material, he said, compares favorably with any he has ever seen. He is of the opinion that since the city of Dallas is to erect many public buildings during the course of the next few years, a brick manufacturing plant operated by city prisoners would result in a saving of thousands of dollars annually. There is an abundance of splendid brick clay just west of the city limits; in fact, the supply is practically inexhaustible, and Mr. Bartlett thinks the city would profit by utilizing this product which nature has placed at its doors. On the Minneapolis city farm hundreds of tons of vegetables and fruit are also produced each year, and these are used in supplying the city's eleemosynary institutions—hospitals, jails, etc. "Our prisoners," said Mr. Bartlett, "are worked on the streets in the residence portions of the city. Of course, it is very necessary to have the streets kept up by them, but frequently there are more prisoners than are needed for this work alone. We are purchasing large quantities of farm products annually for our hospitals and city prisoners and we might as well raise it ourselves. The Minneapolis farm is self-sustaining and has proven an unqualified success. If we should decide to establish a brick manufacturing plant, or some other similar plant, I feel quite sure it would be self-sustaining almost from the outset and would eventually prove as great a benefit to Dallas as the Minneapolis to that city."

Duplication of Street Names Confuses Firemen.

Boston, Mass.—Fire Commissioner Cole is disturbed over the duplication of street names throughout the city, in view of the fact that the fire apparatus is frequently sent to the wrong street when notice is received by telephone of a fire. This recently occurred in the Twelfth Fire District, which embraces West Roxbury, Jamaica Plain and Forest Hills, which has three Linden and five Brook streets. The Fire Commissioner urges the Mayor to take some action to relieve the confusion and the Street Commissioners will be asked to make an investigation. The usual plan for the changing of street names is for citizens to make the request and for hearings to be held. Very few of these requests are adopted owing to the remonstrance from property owners who have business at stake.

Fire Loss Was Quarter Million.

Norfolk, Va.—Norfolk's fire loss for the fiscal year ended July 1, according to Fire Chief McLaughlin's annual report to the Board of Control, was \$245,078.85. This report is based on figures compiled by the adjusters, who estimate the total value of property at \$5,269,907. This makes the actual loss for the twelve months about 4½ per cent., most of which was covered by insurance. Of 470 alarms turned in and answered during the year, 80 were false calls. Although the largest number of alarms (62) were turned in in February, the greatest loss was in May, when the fire loss amounted to \$67,638. Two deaths from burns were reported, while two firemen were injured in the course of their duty. Again the chief emphasized the need of a fire boat to protect Norfolk's waterfront. With the growth of the city the need of more efficient means of fighting flames near the water becomes imperative, thinks the chief. He also asks that his first and second assistants be furnished with automobiles, to replace their horses and buggies, and a 65-foot aerial ladder.

Police Department Head Makes Recommendations.

Paterson, N. J.—The establishment of a new police precinct in the city and two sub-stations is recommended by Police Chief John Bimson in his annual report to the Fire and Police Commissioners. The chief recommends that the new station be established in the southern section of the city, so that business from that section over as far as Cedar street may be handled there. He would have one of the sub-stations located in the Riverside section and the other in the over-the-river district, as he states that the business of the department has increased to such an extent that it is now necessary. The chief further recommends that holes be drilled in the curbs along the principal street, that in case of fire or parades it might be possible to insert iron rods into which ropes could be affixed. Thus he states it would be possible to establish fire lines and protect the public. In speaking of this matter the chief states that if the rods could not be furnished it would be a good idea to fasten rings into the sides of some corner buildings so that ropes could be fastened to them and the streets shut off in case of a fire which menaced the safety of the curious public.

Two Platoon System Proposed.

Topeka, Kan.—It has been suggested at the City Hall that the Topeka Fire Department be placed on the double platoon system of employing firemen. Under this system firemen are allowed to spend half the day at their homes, where now they are in service all day and night. The same system is practiced successfully in Kansas City and Omaha. In other cities the Topeka plan is used. Under this idea the firemen spend twelve hours a day at their engine house one month. The next month they spend the night twelve hours at the station. The rest of the time they have to themselves. The objection to the double platoon system is that a fireman never is allowed to leave the station while on duty. He must eat his meals there and must be ready for action at a moment's alarm. The night shifts are required to remain in uniform and stay awake all night. The adoption of the plan would require an additional shift of firemen in Topeka. In all probability ten extra men would be needed. This is the main argument against it here—the expense. The Topeka plan allows a man meal hours off. Also one day in nine they are at leisure. They are given permission to be off a few minutes at a time and they sleep in the station at night.

Must Not Go Outside City Limits.

Macon, Ga.—The city Fire Department, the city ambulance or any other city vehicle will not be allowed to respond to a call from outside the city limits in the future except in extreme cases of emergency, and then only by permission of the Mayor or some official acting in his place. Alderman Wright introduced the resolution at a recent Council meeting, which does away with city officials performing official duty outside the city limits except on direct permission of the Mayor.

Will Establish School for Firemen.

Portland, Me.—The several companies connected with the Portland Fire Department will be required to practice in the handling of the apparatus. It has been decided that such a course will better equip the men to fight fires and keep them at a high grade of efficiency. Such procedure has proved successful in many of the large cities and it is believed that it will prove equally successful in Portland. The ladder companies will be required to respond to mock alarms and raise their ladders in the same manner as at a large fire. The engine companies will also respond to alarms in the same manner, make connections and run the lines. All the men will be given practice in all departments of actual fire fighting. Only one company will work on one evening, so that in case an actual alarm is turned in during the practice hour there will be ample apparatus to respond to the call. Orders will be at once issued from the office of the chief engineer calling for the practice as described.

AUTO APPARATUS NOTES

New York Advertises for Twenty-eight Tractor-Drawn Steamers—Paterson Reviews Good Work of Motors. Grand Rapids Would Hold Drivers Responsible for Accidents.

New York, N. Y.—Commissioner Joseph Johnson has advertised for proposals for furnishing twenty-eight second size steam fire engines to be propelled by tractors. The speed required is twenty-five miles per hour, with ability to maintain a speed of twenty miles an hour for one hour. The tractor itself is to be of the two-wheel type. The driving power is to be by electricity, or direct shaft drive on the front wheels. In the first plan, power is to be applied to each wheel through electric motors, which are enclosed and geared in the wheels. At the official test the engine must deliver 700 gallons of water per minute against a pressure of 125 pounds and 420 gallons a minute against 200 pounds.

Paterson, N. J.—At a recent meeting of the board of finance, Mayor Andrew F. McBride took occasion to speak of the automobile fire apparatus in use in the department of Paterson. The matter came up when the commissioners were going over the bills of the various departments, and they set about comparing the bills for the fire companies where horses are used with those of the automobile fire companies. The Mayor spoke of the greatly increased efficiency of the motor propelled apparatus, and said that one item alone was worth the money expended. He spoke of the success the firemen met with on July 4 last, when fourteen fires broke out, due to fireworks. He declared that the prompt arrival of the motor-propelled apparatus at several of these fires caught them in incipient stages, and pointed out instances where under ordinary circumstances such fires would have, with a few minutes' delay, turned out to be serious. He particularly cited the fire in the Henry Muhs plant at West Paterson on July 4, as a specific instance of what the motor apparatus was able to do. The mayor said he believed that the new chief's automobile was one of the best obtainable; that it would require less to maintain than others, and he said that the city was fortunate in being able to secure the machine at a discount of \$500.

Raleigh, N. C.—An exhibition test was given in Raleigh last week to demonstrate the value of auto equipment in fire fighting. The motor truck, a LaFrance, was the first motor driven fire wagon ever seen in Raleigh. It was 17 minutes after 9 o'clock in the morning when Driver Welant, of the LaFrance motor truck, received the signal to start from the Centennial school gate, where a big bonfire of dry goods boxes and crates had been lighted. The big truck got away smoothly and quickly, its 75 horsepower motor, running without a muffler. From the south entrance of the capitol to the Masonic Temple, a distance of one block, the truck attained a speed of 58 miles per hour, and the speedometer hand did not drop below that until it reached Cabarrus street. At the school gate a beautiful stop was made, and Raleigh firemen them-

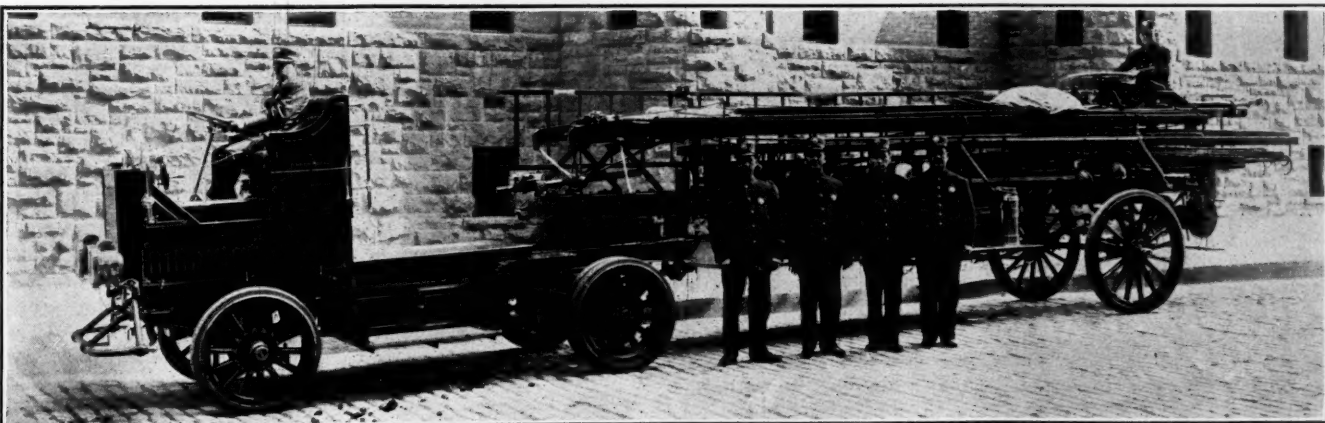
selves manned the chemical apparatus and extinguished the fire promptly. From the moment of starting until the first stream on the fire, the time for the entire journey was three minutes and fifty-eight seconds. This is truly a remarkable record, considering the course covered. The big truck behaved splendidly. Raleigh firemen were elated over the prospects of having a modern fire fighting machine, which will enable the city to successfully handle a blaze before it gains headway. After the test the LaFrance truck was shipped to its destination, Orangeburg, S. C., where it becomes a part of the city's fire fighting equipment.

Grand Rapids, Mich.—Rules and regulations making the drivers of the fire department motor apparatus responsible, and subject to footing accident expenses, will be laid down by Fire Marshal Lemoin in relation to accidents that might occur in which the apparatus is damaged. Recently one of the auto apparatus collided with a street car at Wealthy street and Division avenue, and upon investigating, the marshal says he found that the driver of the machine was largely to blame. At the next meeting of the board of police and fire commissioners the marshal will submit rules which must be adhered to by the drivers. "I want these drivers to have perfect control over their machines while in operation," he said to the members of the board. "They must watch the corners, and I believe that rules should be laid down before any serious accident occurs. They must slow down at corners where there are obstructions. The rules will be accepted by the board, and hereafter, when an accident occurs with the fire department motor apparatus the driver will have to meet the expense.

Pittsburgh, Pa.—The first of the city police patrols was placed in commission in Pittsburgh on August 1 at the Central station. Six more motor driven police cars have been ordered, and, it is believed, they will be in commission before three months have elapsed. Efforts are also bearing fruit to have most of the fire department apparatus of the motor variety. Already several such pieces of machinery have been purchased and are giving satisfaction.

El Paso, Tex.—Mayor C. E. Kelly in his annual message to the City Council said: "I recommend the purchase of a triple combination automobile to replace the combination chemical and hose wagon and a third size Silsby engine, this engine having seen seventeen years of service, same now being in exceedingly unreliable condition, besides being a constant source of extraordinary expense. The replacement of these two pieces of apparatus with the automobile above mentioned will eliminate the maintenance of four horses, one engineer and one driver."

Jackson, Miss.—The new auto-truck for the city Fire Department, a combination truck and hose wagon, has been received, and is ready for service. The truck was obtained from the Seagrave Company, of Columbus, Ohio, and is 80-horse-power, and equipped to carry a thousand feet of hose, together with a 40-gallon chemical tank. The cost to the city will be \$5,150.



Courtesy Schenectady Gazette.

HOOK AND LADDER TRUCK WITH ALCO TRACTOR, SCHENECTADY FIRE DEPARTMENT.

GOVERNMENT AND FINANCE

Initiative and Referendum Amendment Passed.

St. Louis, Mo.—The Municipal Assembly passed an ordinance submitting to the voters at the November 5 election an amendment to the charter providing for the initiative and referendum. The Charter Revision Committee of the League has prepared a report on the amendment, which will be printed shortly, the Executive Board having indorsed its findings. It seems perfectly clear that the amendment as drawn, while not entirely satisfactory, is much better than none at all. The committee believes its stand will meet the general support of the league members, although realizing, of course, that many persons are opposed to the principle of the initiative and referendum. Many of the reforms the league has been urging can perhaps best be secured by having such a provision in the charter, if only as a weapon to be used in case the Assembly fails to represent the community. The committee report says, in substance: First—That a workable and comprehensive initiative and referendum amendment to the charter is highly desirable. Second—That the newer form of the initiative which gives the legislative body a chance first to deliberate on the proposed ordinance is preferable. Third—That the mandatory referendum on general franchises is unnecessary if provision is made for the optional referendum, because the optional referendum on all ordinances affords ample opportunity for the submission of a franchise or any other legislation to the people.

Municipal Court for the Big Cities.

Atlanta, Ga.—The bill to abolish the system of justice of the peace courts in all cities of more than 20,000 which desire to do so has now passed the House and Senate. It needs now only the acceptance by the House of an amendment excepting Chatham County and the necessary constitutional ratification to become effective. Atlanta and other cities which propose to take advantage of the change will substitute for the present system a centralized municipal court, in which several justices or magistrates will sit. At least two well-known local justices of the peace will probably be applicants for places on the new municipal court bench and will receive serious consideration, as the whole reform has been directed not against individuals, but simply against an institution which the larger cities have outgrown.

STREET CLEANING AND REFUSE DISPOSAL

City Tests Sweeping Machine.

Dallas, Tex.—Tests over many blocks of the city streets have been made during the last week of a new street-cleaning machine. Mayor Holland, Street Commissioner Lee, Water Commissioner Nelms and other city officials watched the experiments. The machine, drawn by two horses, sprinkles the street and sweeps the surface with a revolving rubber drum. It is dustless, requires very little water and makes no discomforting demonstrations while in operation, it is claimed. The officials declared their pleasure at the success of the tests and wish to make further tests for speed. The broom covers about seven feet of the stream at a run. If the city buys any, it will likely take at least three of the machines, Mr. Lee said.

Many Cities Inquire About Auto Sprinkler.

Pensacola, Fla.—Pensacola, in adopting the Autocar sprinkler, which is now being used for sprinkling the streets in the city, having been purchased by the board of public works several months ago, seems to have set an example which is apt to be followed by many cities throughout the country, judging from the number of letters of inquiry being received by the city clerk as to how the new machine works, etc. Ever since the autocar was purchased and put to work in Pensacola these letters have

been coming from various parts of the United States and from cities varying greatly in population, according to the city clerk. All of the letters have received the reply that the machine is working fine and is doing the work of two horse driven sprinklers without trouble and giving complete satisfaction. It seems that a number of cities have automobile sprinklers, but that the majority of those constructed along different lines from the one used by this city do not give the satisfaction which this model does.

Working on City Streets.

San Antonio, Tex.—Much good is being done by the city prisoners at work in the streets of the city, cutting weeds and generally cleaning up, according to John Stowe, patrolman in charge of the prison gang. The Fourth Ward has been entirely cleaned of weeds, said Officer Stowe and presents a much better appearance. Working the prisoners on the public streets of San Antonio is an innovation. Prisoners who were unable to pay their fine and who were sentenced to a long term of imprisonment, if able, were compelled to work on the city rock pile. Mayor Richter, however, thought that better results could be gotten by having them clean up the city streets and orders to this effect were issued. The prisoners now working on the streets are all long-term ones, that is with sentences ranging from 100 to 200 days, and as a rule were fined for minor offenses.

Marlin Clean-Up Campaign.

Marlin, Tex.—The city health officer is urging the people of Marlin to make a time for cleaning up their premises. The city has provided means of hauling away all trash. Marlin is in the Holland clean-up contest, and the city health officer is doing his utmost to the end that the town shall win the \$300 prize. It is also urged that weeds in vacant lots and along sidewalks be cut.

RAPID TRANSIT

Air Brakes for All Street Cars.

Washington, D. C.—All street cars operated by the Capital Traction Company in the District of Columbia will soon be equipped with air brakes, the hand brakes, now forming a part of the equipment of a large number of the cars, being retained merely as auxiliary brakes for use in emergencies. It is expected the change will be complete by January 1, 1914. All of the newer cars on the lines of the Capital Traction Company are already equipped with air brakes, and the equipment has been installed on some of the older cars. Hereafter all cars ordered by the company will be built with the air brakes, and the change will be made in the old cars as rapidly as possible, the work being done in the local shops of the company.

Fail to Obey Fender Ordinance.

Portland, Ore.—Spurred by the series of accidents caused by street cars not equipped with the Nelson fender, as provided by the Council, Police Captain Keller has conducted a secret investigation of all the carbarns in the city under control of the Portland Railway, Light & Power Company, and turned the corrected report over to Chief Slover, who plans to take immediate action. Not one street car in 10 complies with the recently enacted ordinance, according to the report of Keller, who assigned several plain clothes men to inspect the cars. Every barn was entered and the report shows that nearly all the cars are equipped with the Hunter fender, an obsolete type, which, the police say, is practically worthless. In several cases a Nelson fender is to be found on one end of a car, while at the other a Hunter fender is fastened. Several cars were found with pilot fenders, the type used by interurban cars and steam engines, and which have no life-saving value whatever.

MISCELLANEOUS

Footprints Form Advertisements.

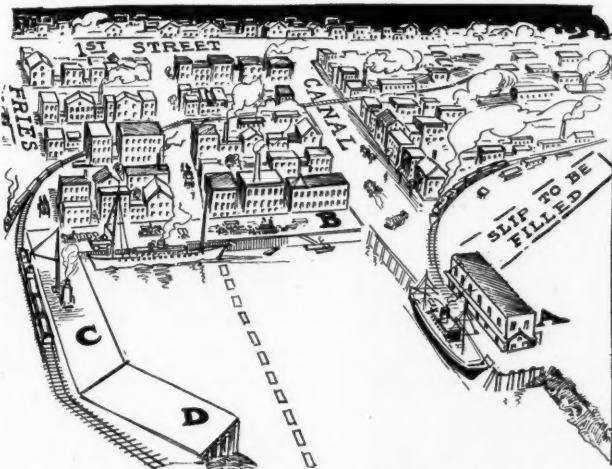
Paris, France.—Advertisement by footprint is the latest device on the boulevards. Since the promulgation of the police decree forbidding handbills to be dropped in the streets all kinds of advertisement methods have been tried. Some firms have sent out two uniformed commissionaires, one to distribute handbills and the other to pick them up. One hawker wears shoes with immense soles of india rubber, which print advertisements on the pavement as he walks, the pad being kept damp by water contained in a can on the man's back and flowing to his feet through pipes concealed beneath his clothes.

Colorado Springs Adopts City Flag.

Colorado Springs, Colo.—The city council has formerly adopted as a municipal flag the design submitted by the local civic league. The flag will portray symbolically many of the features that make Colorado Springs an ideal residence city. The field is of white, standing for the clean streets for which the city is famous. Near the staff end of the flag is a large medallion, surrounded by a strip of green to show the parking system. On the medallion, in blue, is a representation of Pike's Peak, shown with the setting sun behind it. On the sides of the mountain are conventionalized gold nuggets.

Plans for Harbor Completed.

Los Angeles, Calif.—The diagram illustrates the proposed improvements, temporary and permanent, for the Wilmington Basin and the proposed fender for concrete wharves suggested by Harbor Engineer Goodrich. In the picture diagram are shown the proposed concrete wharf (A), 600 feet in length on the eastern side, at right angles to the waterfront and across the mouth of the channel that at present exists, but which will probably be filled up; the proposed temporary structure for the Water street wharf (B), the West Side wharf, which will also be temporary, (C) and the existing 600-foot wharf (D) built last year. At present the last work is being done dredging this channel and basin to a depth of thirty feet. Later Engineer Goodrich advises that the basin be eliminated and a slip formed, as shown in the dotted lines. Because this plan is contemplated the wharf (A) shown is to be made of permanent character. The fender advocated by Mr. Goodrich consists of a line of piles set well out from the wharf, with the tops angling in, and held from contact with the wharf structure by two parallel timbers, bowed, and touching the wharf only opposite the successive bents of piling. This arrangement will result, the engineer says, in a division of the shock caused by a vessel striking the wharf between the inclined piles and the two bowed timbers. He recommends this device as simple and effective, and it is contained in all his plans for permanent wharf construction.



PROPOSED BASIN FOR LOS ANGELES HARBOR.

LEGAL NEWS

A Summary and Notes of Recent Decisions—
Rulings of Interest to Municipalities

Change of Street Grade—Recovery by Lease.

Philadelphia & Reading Coal & Iron Co. v. City of Boston.—A lessee for a term of years, who sustains damage by a change in the grade of a street on which the premises abut, may recover from the city therefor, even though there was no injury to the freehold.—Supreme Judicial Court of Massachusetts, 98 N. E. R., 1067.

Falling Trees—Injury to Traveler.

Donahue v. City of Newburyport.—A traveler upon a public way in a city, fatally injured by the fall of a tree which was being taken down by the city tree warden and his assistants, is not chargeable with contributory negligence because he knew the removal was in progress, nor because he might have paused for a brief time to ascertain what was going on.—Supreme Judicial Court of Massachusetts, 98 N. E. R., 1081.

Acceptance or Rejection of Bids—Fraud.

Miller v. City of Oelwein et al.—Where a city council advertised for bids for laying bitulithic paving, a bid for laying bitulithic or its equal pavement authorized the city council to accept such proposal for laying bitulithic pavement without condition, and hence the rejection of such bid and acceptance of a higher bid for laying bitulithic pavement was a constructive fraud, which could be enjoined by a property owner.—Supreme Court of Iowa, 136 N. W. R., 1045.

Municipal Street Railway—Ordinance—Validity.

Tulloch et ux. v. City of Seattle.—Seattle City Ordinance January 13, 1911, was declared "An ordinance declaring the advisability of a city electric railway on" certain streets, "providing for the same, specifying and adopting the system or plan proposed, and declaring the estimated cost and for submission of such system or plan, and the incurring of indebtedness therefor to the voters. * * *" Section 2 defined the system or plan, route, termini, etc. Section 3 estimated the cost at \$800,000 provided for the issuance of bonds for the purchase, acquisition and construction of a railroad along the proposed line, and declared that whenever any part of the route was found to be occupied by any existing electric railway, privately owned, which in the judgment of the Board of Public Works was suitable for use of the city's system, the same should be appraised at a fair and just valuation by the board, and the city should be then authorized to purchase the same as a part of its system. Held, that the provisions for the purchase of existing street railway lines, or, in case such purchase was not deemed wise, the construction of a parallel line, were not several and distinct purposes, so as to render a joint submission thereof to a vote of the people invalid.—Supreme Court of Washington, 124 P. R., 481.

Building Inspector—Removal.

McGrath v. Mayor and Council of City of Bayonne.—Plaintiff an exempt fireman holding the position of assistant building inspector, was removed therefrom by resolution without charges or complaint made against him. Held, that under the provisions of P. L. 1911, protecting exempt firemen from removal except upon charges and complaint and an opportunity to be heard, the resolution was illegal.—Supreme Court of New Jersey, 83 A. R., 780.

Operation of Municipal Lighting Plant—Torts—Liability.

O'Donnell v. Inhabitants of North Attleborough.—As a rule, statutes enacted to regulate the rights and liabilities of corporations are to be applied only to private or moneyed corporations, and not to municipal or quasi municipal corporations. If a business is lawfully conducted by a town partly and incidentally for profit, it is liable at common law for negligence in managing such business. In absence of statute, there is no civil remedy for wrongful death.—Supreme Judicial Court of Massachusetts, 98 N. E. R., 1084.

NEWS OF THE SOCIETIES

Calendar of Meetings.

August 26-27.
INTERNATIONAL CONFERENCE ON PEOPLE'S BATHS AND SCHOOL BATHS.—Conference Scheveningen (The Hague).—A. M. Douwes Dekker, General Secretary, The Hague.

August 26-30.
INTERNATIONAL ASSOCIATION OF MUNICIPAL ELECTRICIANS.—Seventeenth Annual Convention, Peoria, Ill.—Clarence R. George, Secretary, Houston, Tex.

August 27-29.
UNION OF CANADIAN MUNICIPALITIES.—Annual Meeting, Windsor, Canada.—W. D. Lighthall, Secretary-Treasurer, 305 Quebec Bank Building, Montreal, Quebec, Canada.

August 28-30.
FOURTH INTERNATIONAL SCHOOL HYGIENE CONGRESS.—Meeting, Buffalo, N. Y.—Dr. Thomas Storey, Secretary, Convent avenue and 139th street, New York, N. Y.

August 28-30.
VIRGINIA STATE FIREMEN'S ASSOCIATION.—Twenty-sixth Annual Convention and Tournament, Roanoke, Va.—L. E. Lookabill, Vice-President, Roanoke.

September 2-7.
INTERNATIONAL CONGRESS FOR TESTING MATERIALS.—Sixth Congress, New York City.—H. F. J. Porter, Secretary, 29 West 39th street, New York City.

September 6-13.
CONGRESS ON APPLIED CHEMISTRY.—Meeting, Washington, D. C.—Bernard C. Hesse, M.D., Secretary, 25 Broad street, New York, N. Y.

September 17-20.
INTERNATIONAL ASSOCIATION OF FIRE ENGINEERS.—Annual Convention, Denver, Col.—James McFall, Secretary, Roanoke, Va.

September 18-19.
NEW ENGLAND WATER WORKS ASSOCIATION.—Thirty-first Annual Convention, Washington, D. C.—Willard Kent, Secretary.—Headquarters, Boston, Mass.

September 18-20.
AMERICAN PUBLIC HEALTH ASSOCIATION.—Washington, D. C.—Seldcar M. Gunn, Secretary, 289 Fourth avenue, New York, N. Y.

September 23-28.
FIFTEENTH CONGRESS ON HYGIENE AND DEMOGRAPHY.—Meeting, Washington, D. C.—Dr. John S. Fulton, Secretary, Army Medical Museum, Washington, D. C.

September 24-26.
CENTRAL STATES WATER WORKS ASSOCIATION.—Sixteenth Annual Convention, Detroit, Mich.—R. P. Bricker, Secretary, Shelby, O.

September 24-28.
CHAMBER OF COMMERCE AND INDUSTRIAL AND COMMERCIAL ASSOCIATIONS.—Fifth International Congress, Boston, Mass.

September 30—October 5.
AMERICAN ASSOCIATION FOR HIGHWAY IMPROVEMENTS.—Annual Convention, Atlantic City, N. J.—J. E. Pennybacker, Jr., Secretary, Colorado Building, Washington, D. C.

October 2-12.
FIRE EXPOSITION AND INTERNATIONAL CONFERENCE OF FIRE PREVENTION, PROTECTION AND EXTINGUISHMENT.—Madison Square Garden, New York City. A. D. V. Storey, Secretary, 1269 Broadway, New York, N. Y.

November 12-15.
AMERICAN SOCIETY OF MUNICIPAL IMPROVEMENTS.—Annual Convention, Dallas, Tex.—A. Prescott Folwell, Secretary, 50 Union Square, New York.

December 3-6.
AMERICAN ROAD BUILDERS' ASSOCIATION.—Ninth Annual Convention, Music Hall, Cincinnati, O.—E. L. Powers, Secretary, 150 Nassau street, New York City.

December 12-18.
NATIONAL ASSOCIATION OF CEMENT USERS.—Annual Convention, Pittsburgh, Pa.—R. L. Humphrey, President, Harrison Building, Philadelphia, Pa.

International Association for Testing Materials.

Secretary H. F. J. Porter and Henry M. Howe, chairman of the organizing committee, have issued a third bulletin regarding the Sixth Congress of the association, to be held at 29 West 39th street, New York City, September 2-7, 1912. During the meeting, about 170 foreign and about 35 American papers will be presented.

On Monday, September 2, the headquarters will be open all day for the registration of members, acceptance of the credentials of delegates and the assistance of visitors in securing lodgings.

In the evening there will be an informal reception under the joint auspices of the American Society for Testing Materials, the American Institute of Electrical Engineers, the American Society of Mechanical Engineers and the American Institute of Mining Engineers. Evening dress will not be required.

On Tuesday morning the Congress will convene at 10 o'clock, at which time there will be addresses of welcome by the President of the American Society, and by National, State and Municipal Officials. The various sections will then arrange for their sessions in their respective section rooms. The section sessions will convene at 2 p. m. and continue until 5 p. m. In the evening there will be a reception by the officials of the City in the Public Library Building, Fifth Avenue and Forty-first Street. Evening dress will not be required.

On Wednesday, section sessions will take place from 10 to 12 a. m. The afternoon and early evening will be occupied by an excursion to West Point.

On Thursday there will be section sessions beginning at 10 a. m. and 2 p. m. In the evening there will be a reception tendered to the foreign members by the American Society of Civil Engineers, in its building at 220 West Fifty-seventh Street. Evening dress will be in order.

On Friday, there will be section sessions in the morning and early afternoon, and an evening excursion down the harbor.

On Saturday morning, at 10 o'clock, there will be a general session at which the sections will report, and resolutions upon their recommendations will be presented. The Congress will adjourn at noon.

The Museum of Natural History will receive the Members of the Congresses for Testing Materials and of Applied Chemistry at 3 p. m. The Museum of Art will receive the members of the Congresses at 8 p. m. Evening dress will not be required.

During the Congress ample opportunity will be offered to see many points of interest about the city and its environs. The ladies in attendance will find themselves in the hands of a committee which will arrange for their entertainment. Local Societies of foreigners have extended invitations to the delegates of their respective countries.

Among the papers to be presented of interest to municipal engineers are the following:

The Bitumen Content of Coarse Bit-

uminous Aggregates, by Prevost Hubbard; Tests for Concrete, by C. M. Chapman; Testing of Natural Concrete Aggregates, by R. S. Greenman; Investigations Made Upon Fire Resisting Construction in the United States, by I. H. Woolson and R. P. Miller; Effect of Diameter of Bitumen Holder on the Penetration Test, by C. S. Reeve.

Illuminating Engineering Society.

The sixth annual convention will be held at Hotel Clifton, Niagara Falls, Ont., September 16-19.

The program announced by Norman Macbeth, chairman of the convention committee, 29 West 39th street, New York City, is as follows:

Report of Committee on Progress. This report will deal with the recent progress and developments in the lighting industry both in this country and abroad.

A Report of the Committee on Nomenclature and Standards, which will deal with certain definitions and terminology of illuminating engineering.

"Steel Mill Lighting," a report of the committee on illumination of the Association of Iron and Steel Electrical Engineers, to be presented by the chairman, Mr. C. J. Mundo.

"High Pressure Gas Lighting," by Mr. F. W. Goodenough, Chairman of Council, Illuminating Engineering Society, London, Eng.

"The Status of High Pressure Gas Lighting," by Mr. George S. Barrows. This paper will be a collation of domestic and foreign correspondence pertaining to high pressure gas lighting. "Recent Developments in Gas Lighting," by Mr. R. F. Pierce.

"Indirect and Semi-Indirect Illumination," by Mr. T. W. Rolph.

"Recent Developments in Series Street Lighting," by Dr. C. P. Steinmetz.

"Research Methods," by Dr. E. P. Hyde.

"The Problem of Heterochromatic Photometry and a Rational Standard of Light," by Dr. H. E. Ives.

"Reflection from Colored Surfaces," by Mr. Claude W. Jordan.

"Diffuse Reflection," by Dr. P. G. Nutting.

"A Study of Natural and Artificial Light Distribution in Interiors," by Mr. M. Luckiesh.

"The Physiology of Vision," by Dr. T. A. Woodruff.

"The Efficiency of the Eye Under Different System of Illumination," by Dr. C. E. Ferree. This paper will be a report of a research carried on for the American Medical Association.

"A Proposed Method of Determining the Diffusion of Translucent Media," by Mr. E. L. Elliott.

"Illumination Charts," by Mr. F. A. Beuford.

"The Determination of Illumination Efficiency," by Mr. E. L. Elliott.

"An Absolute Reflectometer," by Dr. P. G. Nutting.

"Colored Values of Illuminated Surfaces," by Mr. Bassett Jones, Jr. This subject will be presented in the form of a series of experimental demonstrations.

One session will be arranged for, a potpourri, at which discussions will be in order on miscellaneous phases of illuminating engineering. It is expected that this session will bring out interesting and valuable points not particularly covered by the above pa-

pers and reports. The scenic wonders of the Falls render possible an entertainment program which will surpass that given at any previous convention of this society. Inspection tours of the power houses and other wonderful development enterprises peculiar to this location have been arranged.

California Association of Electrical Contractors.

At an adjourned meeting held in Palo Alto July 24 the convention of the California Association of Electrical Contractors elected the following officers for the coming year:

John C. Rendler of Los Angeles, re-elected president; C. V. Schneider of Sacramento, first vice-president; J. S. Reynolds of San Francisco, re-elected secretary-treasurer; R. L. Booth of Los Angeles, re-elected sergeant-at-arms.

PERSONALS

Hartshorn, George S., city engineer of Woburn, Mass., died August 3.

Schwartz, Frank H., Pittsburg, Pa., a civil engineer in the Department of Public Works, for a number of years, died July 31.

Schaeffer, John H., New York, N. Y., for a number of years assistant engineer in the Topographical Bureau, Borough of the Bronx, died recently.

Knowles, Morris, Consulting Engineer, Pittsburg, Pa., has been elected Secretary of the Water Conservation Association of Pennsylvania.

Solomon, G. R., of Solomon-Norcross Co., Consulting Engineers, Atlanta, Ga., is supervising the construction of a municipal electric light and power plant at Eatonton, Ga.

Warner, Elwin S., North Adams, Mass., has been appointed Town Engineer of Greenfield, Mass., succeeding H. G. Chapin, resigned.

Herschel, Clemens, Consulting Engineer, New York City, has been retained by the War Department to aid in the investigation of the feasibility of utilizing the Potomac River near Great Falls for additional water supply for the city of Washington and the development of electric power. The work will be done by the Corps of Engineers of the Army under the immediate charge of Col. William E. Langfitt.

Robinson, Edward, Denver, Colo., has been appointed by Mayor Arnold, member of the Park Board to succeed George W. Oinger, resigned.

Carpenter, Horace, has resigned as Mechanical Engineer for the Board of Water Supply of the City of New York, with whom he has been for the past five years in charge of the design and construction of power plants and water controlling apparatus, to become General Manager of the Coffin Valve Company, of Boston, Mass., engaged in the design and manufacture of similar apparatus.

Kessler, George F., Kansas City, has been reinstated as Landscape Architect of the St. Joseph Park Board.

Coble, R. P., Oxford, N. C., has been elected engineer by the See County Highway Commissioners.

Harries, General George H., Washington, D. C., has been appointed General Manager of the Minneapolis General Electric Company. General Harries was formerly vice-president of the Washington, D. C., Railway and Electric Company.

MUNICIPAL APPLIANCES

Electrically Driven Centrifugal Sump Pump.

The Goulds Manufacturing Company, Seneca Falls, N. Y., have placed on the market a centrifugal sump pump direct connected to an electric motor. These pumps deliver from 70 to 210 gallons per minute against a ten-foot head, according to the power of the motor. The pump is made for draining basements, pumping light domestic sewage, and for other similar services where the liquid to be pumped accumulates in a pit or sump. These services require an outfit which is entirely automatic in its operation. In this outfit, the electric motor which drives the pump is automatically con-

to the pump casing, and by means of a rigid pipe column it is connected to the pit cover. The column is of sufficient size to make the suspended outfit rigid.

The casing is made of close-grained iron and contains the volute water passage which conducts the water to the discharge nozzle of the pump. The metal in the casing is of uniform section throughout and free from shrinkage strains. The impeller is of the open type made of close-grained cast iron. It is accurately machined to a smooth finish, insuring the lowest possible friction losses in the pump. The vanes are shaped to give the highest efficiency under normal conditions. The impeller is pressed on the shaft and is securely fastened by means of an accurately-fitted taper pin.

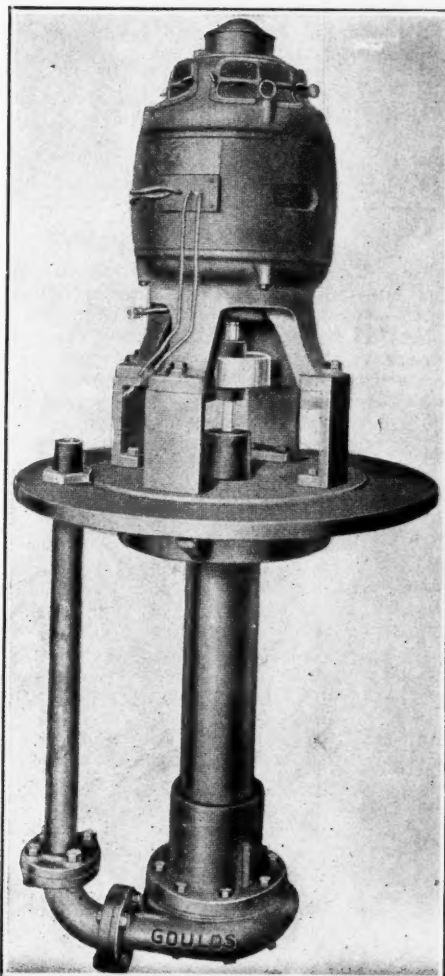
The shaft is made of high carbon open hearth steel, accurately machined to gauge. The shaft is enclosed in the supporting column and protected from the corrosive action of the water in the pit. The supporting flange which connects the pump casing to the pipe column is made of cast iron. Within this flange is the stuffing box. The pump is of the single suction type with the impeller designed so as to minimize the end thrust. In cases where it is necessary for the pump to operate against heads over 40 feet, a ball-bearing thrust is provided.

The pump is made in two sizes, No. 1½ and No. 2. The smaller size with one horsepower motor, speed of 1,100 revolutions per minute has a capacity of 70 gallons against a 10-foot head and 40 gallons against a 20-foot head. With a three horsepower motor, speed 1,100 revolutions per minute, the capacity is 140 gallons per minute against a 10-foot head and 135 gallons against a 20-foot head. The No. 2 pump with 7½ horsepower motor and 1,700 revolutions per minute has a capacity of 210 gallons against a 10-foot head and 200 gallons against a 20-foot head.

Insley Method of Concrete Distribution.

The Insley Mfg. Co., Indianapolis, Indiana, manufacture a large variety of appliances for handling concrete. The demand for equipment for the greater economizing of time and labor cost in the placing of concrete has led to the development of the Insley Method of concrete distribution. According to this system the concrete is taken from the mixer by an automatic concrete hoist and elevated to the receiving hopper placed on a hoist tower at the proper height. From this hopper the concrete is carried by gravity through lines of spouting and deposited in forms, exactly where required, at any point on the work. The hoisting engine and gravity take the place of a large part of the usual crew of men and the day's work of this small remaining crew is simply a question of the capacity of the mixer.

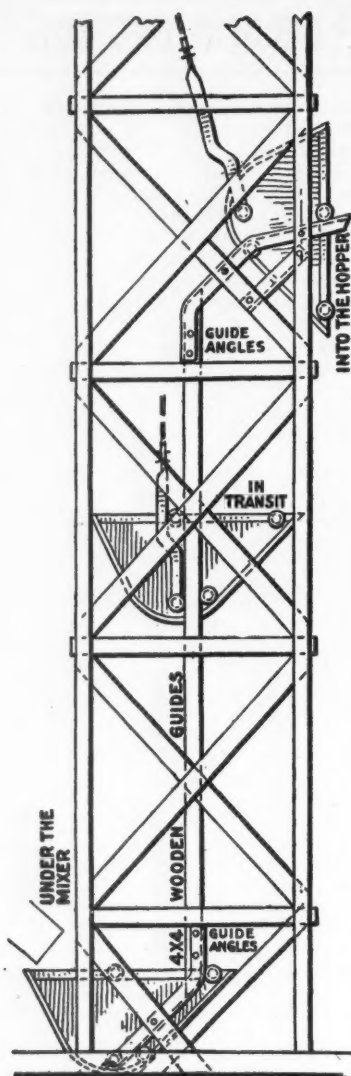
An automatic concrete roller hoist is shown in the illustration. This elevator is extremely simple and efficient. The bucket is carried under the mixer at the bottom and dumped into a hopper at the top, these movements being positive and automatic. The bucket is controlled by steel guide



AUTOMATIC ELECTRIC SUMP PUMP.

trolled by a starting device actuated by a float in the sump. When the liquid in the sump rises to a certain level, and the float is lifted enough to close the switch, the motor is started. The outfit continues to operate until the sump is nearly empty, and the float drops back to the position where it opens the switch and stops the motor.

One of the most important features in the design of this unit is that it is entirely self contained. The motor is of the vertical type and by means of suitable pedestals is bolted to a circular or rectangular plate. The plate is cast iron so that it forms a satisfactory cover for the sump or pit in which the unit operates. A heavy flange is bolted



HOIST TOWER.

angles, which are bolted to the top and bottom ends of four inch by four inch vertical wooden guides in the tower. The guides at the bottom of the tower slip the bucket easily under the spout of the mixer to be filled. The guides at the top not only compel the bucket to dump, but carry it over the hopper with a very slight movement of the lip of the bucket, thus eliminating much of the throwing and splashing of the concrete.

The rollers and sheave are practically frictionless, and therefore the bucket requires but little attention after being placed in the tower. The tower is constructed of wood throughout.

The bucket used with this equipment is shown in the illustration. The top bar of the bail carries a wire rope sheave. The side pieces of the bail swing from a pivot at the bottom. There are two guide rollers nearly on the median line of the bucket and a throw roller, placed near the front of the bucket which starts the dump.

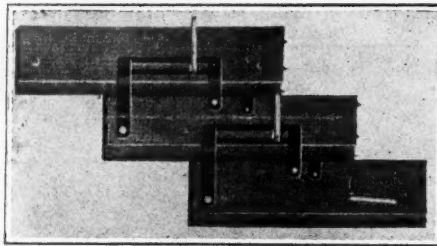
In a modified form of the roller hoist called the combination hoist, the framework is of steel. The bucket is carried on a platform. The bucket can be removed and the platform used for wheelbarrows, carts or any usual elevator service.

The Insley Company makes a portable auxiliary derrick to be clamped to the post of the tower in which the standard hoist operates. The boom

swings freely through three-quarters of a circle. The lifting capacity is 1500 pounds.

Where the concrete is to be spouted a hopper of heavy steel plates is attached to the framework by bolts and rods.

This spouting is of two types, the swivel head spouting and the continuous line spouting. The first with swivel hanger connections is supported usually by portable towers. The second with sleeve-and-insert connections is suspended from a cable, one end of which is fastened to the top of the tower, above the receiving hopper. The swivel head spouting is very flexible and can be readily shifted about in any direction, and is therefore very advantageous for covering a large area where a working floor is obtain-

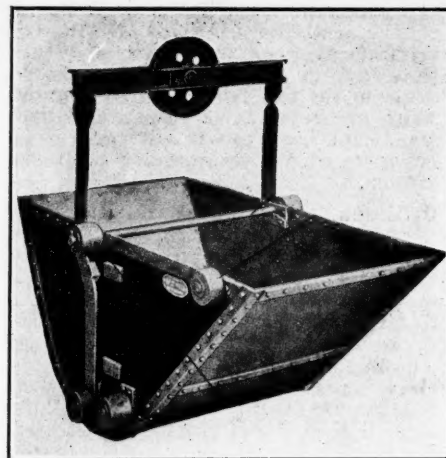


FORM FOR CONCRETE STEPS.

able. The continuous line spouting allows an uninterrupted flow of concrete from the hopper gate to the point of discharge, and for this reason is particularly valuable for carrying concrete for considerable distances. A combination of the two can be made to meet any situation where the operation of a chuting plant is possible.

Adjustable Form Holder for Concrete Steps.

H. L. Park, Reading, Mass., has put on the market an adjustable form holder for concrete steps. The form holder is adjustable to any ordinary flight of steps. The "rise" height is taken care of by making each section of two boards, bolted together with a slotted hole on one board, reinforced by a strap on one side. The "tread" adjustment and the actual assembling of the form is by slotted extensions,



AUTOMATIC HOISTING BUCKET

bolted to the upper form, and fastened when in use to the section below by an eccentric lever working in the slot. In setting up the forms, a good way is to drive two stakes about 30 ins. out from the first step. The first pair of "holders" is placed against these, and the riser board tapped against the brads in the point of the holder. Concrete for the first step is then placed and finished, and the second pair of holders is placed, clamped onto the lower pair by the eccentric hand bolt.

Lead Wool.

The accompanying illustration gives at a glance an excellent idea of lead wool as prepared for calking joints of iron, water or gas pipes and other purposes by the United Lead Company, 111 Broadway, New York. The lead is made by a mechanical process of extremely thin, long fibres of pure lead, which, when calked, becomes practically a solid mass. It is handled cold. In making a joint in a pipe, the joint is first carefully calked with yarn, generally to a somewhat greater depth than when cast lead is used. The strands or skeins of lead wool are then introduced, each skein being calked separately, the result being a dense mass of lead capable of standing, it is claimed, greater pressure than a joint made in the old way.

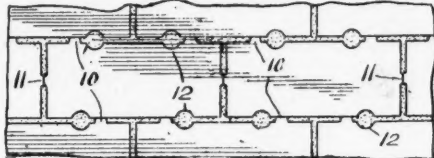


LEAD WOOL SHIPPING PACKAGE, Giving Dimensions and Weight. Skeins of Lead Wool in Original Form and After Being Prepared for Calkers.

PATENT CLAIMS

1,034,033. PAVING BRICK OR BLOCK. James M. Porter, Pittsburgh, Pa. Serial No. 636,576.

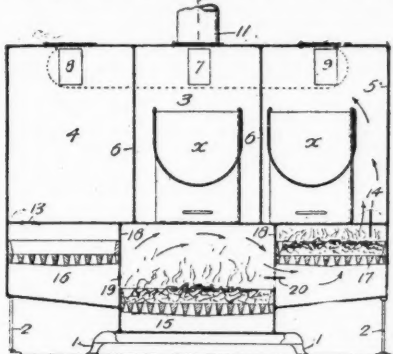
A paving brick or block having a side face formed with spacing projections and also having a plurality of depressions intermediate the projections, said depressions being spaced apart and positioned in proximity to the projections, said depressions being adapted to coact with depressions of two bricks of an



adjacent row to form enlargements within which grouting material between the rows may be received to form a key having spaced-apart enlargements, said enlargements and the spacing projections coacting to retain the bricks of adjacent rows against relative longitudinal movement, said depressions extending from the top to the bottom planes of the brick.

1,034,266. INCINERATOR FOR GARBAGE. &c. Luther Matthews, Paris, Tenn. Serial No. 654,296.

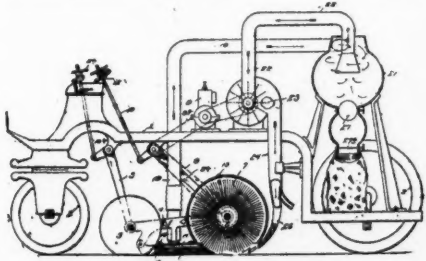
The improved incinerator for the purpose specified, comprising three compartments separated by vertical partitions and having exit openings at the top, a common discharge pipe arranged horizontally and connecting with such openings, the bottoms of the compart-



ments having openings provided with dampers, a series of grates, one arranged under each compartment and the central grate located lower than the two adjacent ones, and partitions between the said grates which are provided with openings having dampers that permit discharge of the products of combustion from the central grate beneath either or both of the end grates, as shown and described.

1,033,164. STREET-CLEANER. Callo D. Fahrney, Milwaukee, Wis. Serial No. 606,145.

A cleaner comprising a truck-supported forwardly disposed flexible roller, a driven cylindrical brush spaced rearwardly of the roller, struts connecting the brush and roller, a hous-



ing extending partly over the brush having one edge forming a tight joint in connection with the adjacent roller edge, whereby a chamber is formed between said brush and roller, a suction pipe in communication with the chamber, and a blast-pipe disposed rearwardly of the cylindrical brush.

1,034,322. WATER-LIFT. Benjamin Franklin Strange, Corvallis, Mont. Serial No. 671,536.

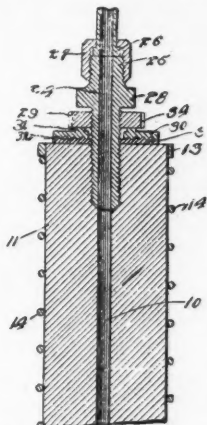
The combination of a trough comprising end portions at different levels, and an intermediate inclined portion, the lower end portion



being in communication with a supply of water, a rail extending adjacent the trough, the top of the side walls of the trough forming a suitable track, a pusher positioned within the trough and extending at an angle from the bottom thereof, a car mounted on the rail and the top of the trough and movable therealong, a shaft carried by the car, the said pusher being mounted on the shaft, means for raising and lowering the pusher whereby, when the car is moved from the lower end of the trough to the upper end, the pusher will lift an amount of the water.

1,033,690. MACHINE FOR PRESERVING PILES, ETC. William Henry Garlock, Seattle, Wash. Serial No. 661,834.

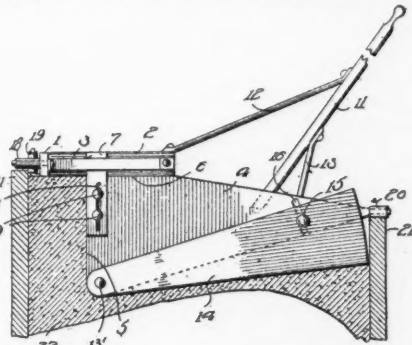
In an apparatus for preserving timber, means for connecting a pressure pipe to the timber comprising a threaded nipple adapted to enter a hole in said timber; and means for preventing the escape of preservative fluid



from said timber comprising an elastic gasket surrounding said nipple and lying against the end of the timber, a follower plate bearing on said gasket, and a follower nut threaded on said nipple and bearing on said plate

1,034,074. CEMENT CURB AND GUTTER MOLD. James Stephen Wood Cannell, Shenandoah, Iowa. Serial No. 648,933.

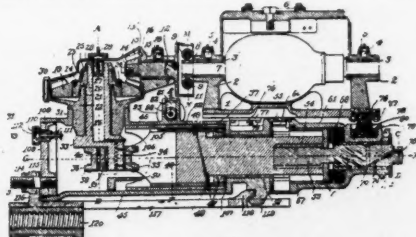
In a device of the kind described, a longitudinally movable frame, a mold board projecting laterally from said frame, clamping



plates connecting said mold board with said frame and vertically adjustable on the mold board, and a wing board extending laterally along the lower edge of said mold board and adjustable vertically with respect thereto.

1,034,052. DRILL FOR ROCK, COAL, AND OTHER MATERIAL. Samuel S. Wyer, Columbus, Ohio, assignor, by mesne assignments, to The Jeffrey Manufacturing Company, a Corporation of Ohio. Serial No. 241,076.

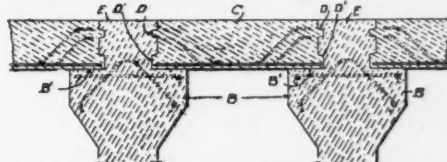
The combination with a shell of a driving cylinder reciprocating therein, a drill, a drill operating means reciprocable within said driving cylinder, a rotary motor, power trans-



mitting devices between said driving cylinder and said motor, and pneumatic connections whereby the reciprocation of said driving cylinder in said shell supplies compressed air to said drill operating means.

1,033,988. REINFORCED-CONCRETE DAM. Howard L. Coburn, Boston, Mass., assignor to Ambursen Hydraulic Construction Company, Boston, Mass., a Corporation of New Jersey. Serial No. 417,651.

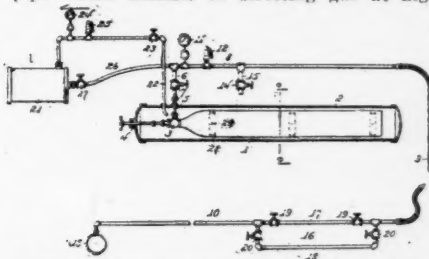
A reinforced-concrete dam consisting of transverse buttresses of reinforced-concrete set, edgewise to the flow of the stream and having lateral brackets near their upstream edges, but at a distance therefrom equal about



to the thickness of the deck, and a deck or upstream face composed of independent reinforced concrete slabs between the buttresses extending slantingly from the bottom to the top thereof and resting against said brackets, said deck being flush with the upstream edges of said buttresses.

1,034,301. CLEANING PROCESS FOR WATER-PIPE. George W. Redeker, Wheeling, W. Va. Serial No. 575,364. Renewed. Serial No. 674,629.

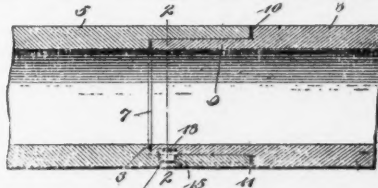
The process of flushing house-service water pipe which consists in directing gas at high



pressure into said pipes to produce a violent impact with the water in the latter, and then closing off the gas to allow the water to discharge from said pipes.

1,033,187. COUPLING. Sherman E. Metzger, Silver Lake, Ind. Serial No. 679,205.

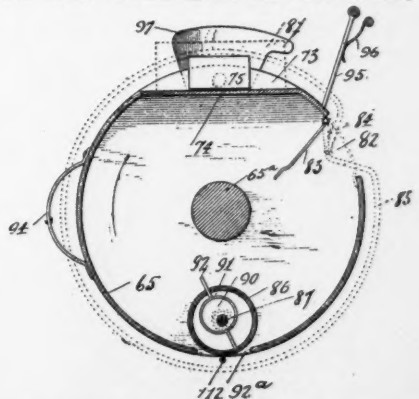
The combination of a female coupling head provided with a groove in its inner wall and having its inner end transversely disposed, said transversely disposed inner end of the groove having a projection formed on its base wall, a male coupling head provided with a



reduced portion to be received in the female coupling head, and a leaf spring rigidly fixed at one end to the reduced portion of the male head, said head being provided with a recess in its periphery to receive the free end of said spring, said spring being adapted for movement into the transverse groove portion of the female head

1,033,954. BRICKLAYING MACHINE. Max George Schindler and Linus Paul Schindler, Hamburg, Germany. Serial No. 535,273.

A bricklaying machine comprising a rotatable brick carrier, means for automatically



gripping the brick upon the carrier during a part of the revolution of said carrier, and means for releasing the brick when the carrier has conveyed the brick to a position to be laid.

INDUSTRIAL NEWS

Cast Iron Pipe.—Chicago.—An unusual demand is noted this year for 36-inch pipe. Quotation: 4-inch, \$27.50; 6 to 12-inch, \$26.25; 16-inch and up, \$25.50. Birmingham.—The new plant of the Central Foundry Co. at Holt, Ala., will be started in a few days. It is reported as well supplied with orders. Quotations: 4-inch, \$24; 6 to 8-inch, \$22; 10-inch and over, \$21.50. New York.—No public lettings of importance are in sight. Private buying continues excellent, the demand being mostly for pipe of small diameters. Quotations. 6-inch, \$22 to \$23.

Lead.—The market is dull. The American Smelting & Refining Company reduced its quotation from 4.75c. to 4.50c. on August 5. This is believed to be due to the lack of demand and to the fact that there is enough lead in the hands of the independent smelting companies to control the market.

Cleaning Water Mains.—The National Water Main Cleaning Company, New York City, gave a demonstration of their process by cleaning an old six-inch main in Seventh avenue, Altoona, Pa. The company has been engaged during the summer in cleaning the mains of the Pennsylvania Railroad Company from the Pottsgrove reservoir to the shops. There are two of these mains, one a ten-inch and the other 12 inches. The work was very satisfactorily done, and the board of water commissioners has entered into a contract with the company to clean the main on Seventh avenue.

Rustic Waste Receptacles.—Emil L. Nuebling, superintendent and engineer of the Reading, Pa., water department, desires information regarding cast iron waste receptacles of rustic pattern.

Street Signs.—The Indestructible Sign Co., 101 S. Scioto street, Columbus, O., are sending out post card facsimiles of their street signs. These signs are made of steel $\frac{1}{8}$ -inch thick into which letters are sunk by means of a series of drills. The surface is black; the sunken letters are filled with pure white cement. The white concave surface acts as a reflecting mirror, making the signs legible for a long distance, it is said.

Smokestacks and Ventilators.—The H. W. Johns-Manville Co., New York City, manufacture ventilators and smokestacks out of Transite Asbestos Wood. This material is made by moulding pure asbestos fibres and Portland cement into a homogeneous mass under hydraulic pressure. This makes a material which is claimed to be unaffected by fire, rust, acids, gases, water or extremes of temperature. These stacks and ventilators are recommended as substitutes for cast iron, brick or tile, particularly where a light weight is desirable as on small watch houses, contractors' camps and the like. The stacks are made in any size over six inches in diameter and built up to any length. The base of the stack is readily cut to fit the slope of the roof.

Cement.—In the Portland cement mills ninety-five per cent. of capacity is being operated throughout the Lehigh Valley districts.

Clay Products.—The Central Clay Products Company has begun work on the construction of its plant at Beach Ridge, on the line of the New York Central Railroad, near North Tonawanda, N. Y. A good supply of water has been found in a gravel stratum between the clay beds near surface and the underlying rock. The company figures that it has clay in sight for more than fifty years. The company will manufacture paving blocks, fireproofing, conduits, sewer pipe and ordinary building brick. It is expected that a market will be found for the paving brick in Lockport, Tonawanda, North Tonawanda, Niagara Falls and Buffalo. Officers of the company are: H. J. Knapp, president, North Tonawanda; L. K. Stevens, North Tonawanda, secretary and treasurer, and E. B. Reed, superintendent; W. H. Griffen and C. S. Orton, North Tonawanda, are also members of the board of directors.

New Rotary Pump.—O. H. L. Wernicke, Grand Rapids, Mich., is interested in the organization of a company which will manufacture a rotary pump of new design. The new concern will be known as the Wernicke-Hatcher Pump Company.

Valves.—The contract has been awarded for important additions to the works of the Crane Valve Company, Bridgeport, Conn.

Rubber Tires.—No period in the history of the motor truck industry has developed such marked improvements in solid tires as those noticeable during the past year. The best proof of this statement is the fact that within the year manufacturers have increased their mileage guarantees 2,000 and in some instances 4,000 miles. It now is possible for a truck owner to buy tires covered by a guarantee of 10,000 miles, irrespective of the city or locality in which they are to be used. Up to a short time ago manufacturers were compelled to discriminate against certain cities and localities because of local conditions, such as bad pavements, unimproved highways, the prevalence of hills and for other causes peculiar to a particular section. In such places guaranteed mileage was less than where better conditions prevailed. Demountable solid tires for use on motor trucks likewise have had the effect of generally improving tire service. They have been proved to be entirely practical and have eliminated the delays and inconvenience resulting from the use of pressure applied tires.

Commenting on the solid tire situation at the present time, F. F. Phillips of the United States Tire Company says: "Truck owners are not only receiving greater mileage guarantees to-day than ever before, but they are getting better all-around service. As the tire question is regarded as one of the greatest determining factors entering into economic motor truck operation, the general effect upon truck development is apparent. Our new demountable solid tire, which has been on the market about eight months, is sold under a flat guarantee of 10,000 miles, conditional only upon

the service being had within one year's time. The locality where the tires are to run makes no difference in our case. This concession in itself is an innovation. Truck owners themselves are finding out a great many facts about tires and conditions that enter into an economic tire service. They have learned, for one thing, that a manufacturer's mileage guarantee is valuable only in determining the maximum of maintenance cost. Simply because a tire is guaranteed for 8,000 or 10,000 miles is no reason why it should not yield a greater service, with proper handling. Therefore the minimum maintenance cost is largely up to the operator. Systematic care of solid tires and avoiding the abuses to which they frequently are subjected are certain to result in reduced tire bills. The very nature of the service in which truck tires are engaged exposes them to a great many deteriorating influences. It is possible, however, for the operator to minimize his influences by giving his tires the attention they deserve, not only because of their importance to the truck, but because they are expensive."

Gas and Oil Engines.—The Columbus Machine and Tool Company, which was founded in June with a capital of \$500,000, has purchased the business of the Columbus Machine Company, Columbus, and the Vulcan Furnace Company, Warren. Contracts have been placed for the construction of an entirely new, modern and up-to-date manufacturing plant in Columbus, Ohio, in which the company will manufacture gas, gasoline and oil engines up to 600 H. P., mechanical stokers, shaking grates, pipe machines, bolt machines, piston machines, etc.

Cement Gun.—The New England Cement Gun Co., of Boston, which is operated by the Ambursen Hydraulic Construction Co., is resurfacing the face of a solid concrete dam 194 ft. long by 20 ft. high, belonging to the Woonsocket Electric Machine & Power Co., across the Blackstone River in Rhode Island. Messrs. Stone & Webster are the engineers.

Trip for Steam Shovel.—The Lines Flynn Co., of 50 Church street, New York, has placed on the market the steam trip for steam shovels which has been developed by the engineers engaged in the Panama Canal, and has been approved by the Isthmian Canal Commission's experts as the best device for the purpose.

Rubber Tires.—The general offices of the United States Tire Company have been moved to the new United States Rubber Building, Broadway and 58th street, New York. This structure, the tallest north of Forty-second street, has recently been completed and will be utilized in future as the home of the United States Rubber Company, and its subsidiary companies. The building is twenty stories high. The United States Tire Company will occupy the basement and sub-basement as a stock room; the ground floor for its New York branch and the fifteenth, sixteenth and seventeenth floors as general offices. The company has over 400 employees in its general offices. The New York branch store will be moved into the new quarters about Aug. 15.

THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewerage, Water Supply and Public Lighting—Fire Equipment and Supplies—Bridges and Concrete Work—Sanitation, Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards.

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also correction of any errors discovered.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREET IMPROVEMENTS				
Ohio	Seville	Aug. 17, noon	Paving 2 streets	S. D. Hall, Village Clerk.
Indiana	Evansville	Aug. 17, 10 a.m.	Constrn. brick pavement	S. A. Bartholome, Clerk.
Kansas	Chanute	Aug. 17	Constrn. stone and earth road	Roads Commissioners.
Ohio	Hamilton	Aug. 17	Repairing macadamized pike	County Commissioners.
Ohio	Salina	Aug. 17, 10 a.m.	Macadamizing road	D. R. Smalley, County Engr.
Nebraska	Grand Junction	Aug. 17, noon	Improving and repairing road	G. E. Newman, County Clerk.
Pennsylvania	Marcus Hook	Aug. 19, 8 p.m.	Paving with asphaltum composition	M. E. Connolly, Boro. Pres.
New Jersey	Camden	Aug. 19, 8 p.m.	Paving several sts. with Belgian block	M. N. Turner, Dir. Pub. Ser.
Ohio	Toledo	Aug. 19, 10 a.m.	Grading, draining and macad county roads	C. J. Sanzenbacher, Co. Audr.
New Jersey	Trenton	Aug. 19, 1 p.m.	Constrn. roads at Skillman	D. F. Weeks, Supt.
Ohio	Lisbon	Aug. 19	Imp. and paving road	County Commissioners.
Ohio	Columbus	Aug. 19, noon	Constrn. 4.23 miles mac. & 2.38 m. concrete	County Commissioners.
New Jersey	Jersey City	Aug. 19, 2 p.m.	Improving Passaic ave.	E. B. See, Clerk Comrs.
Iowa	Fort Dodge	Aug. 19, 9 a.m.	Constrn. cement sidewalk	W. L. Tang, City Clerk.
New Jersey	Newark	Aug. 19, 3 p.m.	Resurfacing Bloomfield av.	S. P. Gilbert, Ch. Committee.
Pennsylvania	Philadelphia	Aug. 19, noon	Constrn. wood, brick & asphalt pavement	M. L. Cooke, Director.
Ohio	Cleveland	Aug. 20, 9 a.m.	Laying stone sidewalks	J. Boyle, Sec. Bldg. Com.
Arkansas	Pine Bluff	Aug. 20, 2 p.m.	Constrn. 25,500 yds. bk. or wd. blk. pav't.	S. A. Kinnear, Dir. Pub. Ser.
Nebraska	Grand Island	Aug. 20	Imp. and repairing roads	G. E. Neumann, County Clerk.
New York	No. Tarrytown	Aug. 20, 3 p.m.	Constrn. 1½ miles road	E. F. Hennessey, Town Clerk.
Florida	Ocala	Aug. 20	Constrn. 12,000 yds. brick	H. C. Slstrunk, City Clk.
Ohio	Youngstown	Aug. 20, noon	Grading and draining a number of sts.	Director Public Service.
New Jersey	Elizabeth	Aug. 20, 3 p.m.	Pav. with Warrenite or similar material.	J. L. Bower, County Engr.
Connecticut	Bridgeport	Aug. 20	Furn. wood block	Paving & Sewer Commission.
Pennsylvania	Sagon	Aug. 20, 6 p.m.	Constrn. road	County Commissioners.
Pennsylvania	Pittsburg	Aug. 20, noon	Paving bridge with creosoted wood	R. J. Cunningham, Co. Comp.
Missouri	Poplar Bluff	Aug. 21	Constrn. 30,000 yards brick	E. C. Thomas, City Engr.
California	Sacramento	Aug. 21	Constrn. State highways	State Highway Commission.
Texas	Port Arthur	Aug. 21, 10 a.m.	Con. 27,000 yds. pav. on c'crete & dr'nage.	L. D. Heckman, Comr.
Iowa	Des Moines	Aug. 21, 9 a.m.	Constrn. pavements	J. R. Hanna, Mayor.
Ohio	Fletcher	Aug. 22, noon	Resurfacing 2 miles road	C. L. Berryhill, Twnshp Clk.
Ohio	Columbus	Aug. 22, 1 p.m.	Constrn. 2.01 miles macadam in Richland.	
			Constrn. 2.18 m. macad. bit. surf. in Rice.	
			Constrn. 2.05 m. bit. macadam in Adams.	
			Constrn. 1.04 miles macadam in Oxford.	
			Constrn. 1 mile bit. concrete in Darby.	
			Constrn. 2.21 miles bit. concrete in Leroy.	
			Constrn. 1.33 miles brick in Center.	
			Con. 1.35 m. macad. & c'crete in Sugar Crk.	
			Constrn. 1 mile brick in Perry.	
			Constrn. 1.04 miles bk. in Center & Union.	
			Constrn. .97 miles bit. concrete in Wayne.	
Indiana	Fort Wayne	Aug. 22, 7.30 p.m.	Constrn. sidewalks	J. R. Marker, State Hwy. Comr.
Alabama	Jasper	Aug. 22	Grading and draining road	F. T. Benoy, Chrmn. B. P. W.
Ohio	Cincinnati	Aug. 23, noon	Imp. road	County Commissioner.
Ohio	Napoleon	Aug. 23, 10 a.m.	Constrn. road improvement	County Commissioner.
Iowa	Dubuque	Aug. 24	Constrn. 7,500 yds. brick, 2,550 macadam.	County Auditor.
Missouri	Sedalia	Aug. 24, noon	Constrn. 47½ miles roads.	City Clerk.
Mississippi	Forest	Aug. 26	Constrn. 25 miles gravel & macadam rds.	Chas. McEntry, Chm. Dist.
Virginia	Gordonsville	Aug. 26	Macad. Main street	F. A. McIlhenney, Sec.
New Jersey	Roselle Park	Aug. 26, 8 p.m.	Constrn. 14,000 yds. bituminous macadam.	W. A. Brown, Engineer.
California	Sacramento	Aug. 26, 2 p.m.	Constrn. 56 miles asphaltic macadam.	A. M. Woodruff, Boro. Clerk.
Indiana	South Bend	Aug. 26, 10 a.m.	Constrn. gravel road	State Highway Commission.
Florida	Gainesville	Aug. 26, 4 p.m.	Constrn. 65,000 yds. brick	County Commissioners.
Florida	Pensacola	Aug. 27, noon	Constrn. 30,000 ft. concrete walks	Board Public Works.
Alabama	Talladega	Aug. 28, noon	Constrn. gravel road	L. E. Thornton, City Engr.
Indiana	Evansville	Aug. 29, 10 a.m.	Constrn. pavements on highways	County Commissioners.
Indiana	Fort Wayne	Aug. 30, 10 a.m.	Constrn. stone road	County Commissioners.
Illinois	Kankakee	Aug. 30 (about)	Constrn. 65,000 sq. yds. vit. brick paving	C. H. Brown, County Aud.
Indiana	South Berd.	Aug. 31, 10 a.m.	Constrn. gravel road	E. W. Alpiner, Mayor.
Alabama	Cullman	Aug. 31	Macadamizing two roads	County Commissioners.
Ohio	Fostoria	Aug. 31, noon	Constrn. pavements in several streets	County Commissioners.
Mississippi	Laurel	Sept. 1	Constrn. brick or creosoted wood pav't, 60,000 yds.	R. J. Barrett, Clerk.
Ohio	Lowellville	Sept. 2, noon	Constrn. sidewalks, curbs and gutters	J. H. Crawford, City Clk.; Iowa
Nebraska	Beatrice	Sept. 4, 5 p.m.	Constrn. sidewalks	Eng. Co., Clinton, Ia.
Missouri	Cartersville	Sept. 5, 5 p.m.	Constrn. curbs, sidewalks and drainage	C. W. Baker, Clerk.
Louisiana	Shreveport	Sept. 12	Constrn. hard surface permanent rdwy, 5 miles	Super. Architect, Wash., D. C.
South Carolina	Columbia	Sept. 14, noon	Maintain roads	F. B. Newton, City Engr.
				J. T. Bullen Co., Engr.
				County Supervisors.
SEWERAGE				
New Jersey	Roselle Park	Aug. 17, 8 p.m.	Constrn. sewers	J. W. Higgins, Boro. Engr.
Ohio	Salem	Aug. 17, noon	Constrn. sanitary sewer	D. H. Rummel, Dir. Pub. Ser.
Ohio	Millersburg	Aug. 17	Constrn. Crawford st. sewer	S. Franks, Jr., Clerk.
Ohio	Salem	Aug. 17, noon	Constrn. sanitary sewer	D. H. Rummel, Dir. Pub. Ser.
Indiana	Hammond	Aug. 19, 10 a.m.	Constrn. sewers	Adam Ebert, Ch. Bd. Pub. W.
New Jersey	Plainfield	Aug. 19	Imp. contact sewer bed	J. T. MacMurray, City Clerk.
Florida	Jacksonville	Aug. 19, 3 p.m.	Constrn. several drains	L. D. Smoot, Engineer.
New York	Yonkers	Aug. 19	Constrn. house sewer in New Place	J. V. Mahoney, Sec. Bd. Con. & Sup.
South Dakota	Aberdeen	Aug. 19, 10 a.m.	Constrn. 1,100 ft. 8 and 10-in. pipe sewers	F. W. Raymond, City Aud.
Illinois	Barrington	Aug. 19	Constrn. sewers & purification plant	M. T. Lamey, Pres. Trustees.
Michigan	Owosso	Aug. 19, 10 a.m.	Constrn. 9,000 ft. 8 to 12-in. sewers, &c.	Board Public Works.
New Jersey	Perth Amboy	Aug. 19, 8.30 p.m.	Constrn. sewers	G. M. Adair, Street Comr.
Michigan	Bay City	Aug. 19, 9 a.m.	Constrn. pipe sewers	R. O. Woodruff, Ch. B. P. W.
Iowa	Burlington	Aug. 19, 9 a.m.	Constrn. vitrified pipe sewers	H. B. Vollmer, City Engr.
Ohio	Youngstown	Aug. 20, noon	Constrn. sewer	Director Public Service.
New Jersey	Hightstown	Aug. 20	Constrn. sewerage system & disposal plant	C. C. Blauvelt, Mayor.
Iowa	Hampton	Aug. 20, 8 p.m.	Extending sewer system	W. H. Leakey, City Clerk.
Pennsylvania	Reading	Aug. 21, 2 p.m.	Constrn. sanitary and storm sewers	E. B. Ulrich, City Engr.
New Jersey	Newark	Aug. 22, 3.30 p.m.	Constrn. sewers in number of streets	M. R. Sherrard, Chief Engr.
Iowa	Dubuque	Aug. 24	Constrn. 7,000 ft. 8-in. sewers	City Clerk.
Wisconsin	West Allis	Aug. 24	Constrn. pipe sewer	Board Public Works.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
Indiana.....	Lebanon.....	Aug. 26.....	Constrn. 32,000 ft. 8 to 12-in. pipe sewer..	Oliver Clark, City Engr.
Illinois.....	Rockford.....	Aug. 28, 2 p.m....	Constrn. number of sewers, cost \$42,000..	W. W. Bennett, Pres. B. L. I.
Texas.....	San Benito.....	Aug. 30.....	Constrn. 24,000 ft. 8 to 14-in. pipe and disposal plant	B. Frazier, City Sec.
So. Dakota.....	Redfield.....	Aug. 31, noon....	Constrn. 2,400 ft. 18 and 20-in. sewer.....	H. T. Patch, City Aud.
Texas.....	Clarksville.....	Sept. 1 (about)...	Constrn. sewers, cost \$4,500.....	J. R. Webb, City Clerk; Nagle & Peterson, Muskogee, Engrs.
Oregon.....	Eugene.....	Sept. 9, 8 p.m....	Constrn. sewerage system	R. S. Bryson, City Recorder.
New Jersey.....	Newark.....	Sept. 10.....	Constrn. section 16 Passaic Valley sewer.	Commissioners.
So. Carolina.....	Blackville.....	Sept. 17.....	Con. 14,000 ft. pipe sewer & disposal plant.	City Clerk.
WATER SUPPLY				
Illinois.....	Chicago.....	Aug. 19, 11 a.m....	Furn. hydrant and valve castings.....	L. E. McGann, Commissioner.
Indiana.....	Columbus.....	Aug. 19.....	Furn. 2 4,000,000 gal. pumps, 1 steel tank.	City Clerk.
Illinois.....	Great Lakes.....	Aug. 19.....	Constrn. concrete sediment basin.....	Navy Dept., Washington.
New Jersey.....	Trenton.....	Aug. 19, 1 p.m....	Constrn. water tank twr & extensions at Skillman	D. F. Weeks, Supt.
South Carolina.....	Blackville.....	Aug. 20.....	Cost. wtr wks. cost, \$21,000; swge systm, \$12,000	D. N. Johnston, Eng., Florence.
Ohio.....	Lima.....	Aug. 21.....	Constrn. reservoirs at hospital.....	D. F. Whitney, Sec.
Illinois.....	Bellewood.....	Aug. 21, 8 p.m....	Constrn. water works	P. H. Korrell, Village Clerk.
Minnesota.....	Madison.....	Aug. 22, 2 p.m....	Constrn. water works & lighting plant...	J. H. Hayden, City Recorder.
Louisiana.....	New Orleans.....	Aug. 24, noon....	Const. reinforced concrete siphon.....	F. S. Shields, Sec'y.
Illinois.....	Anna.....	Aug. 26.....	Constrn. concrete reservoir, 3 1/2 miles mains, filter plant, &c.....	State Board; Dabney & Maury, Chicago, Engr.
Texas.....	Dallas.....	Aug. 26, 2 p.m....	Constrn. water purification plant.....	J. B. Winslett, City Sec.
Nebraska.....	Winnebago.....	Aug. 27.....	Constrn. water works	E. Wiltzie, Village Clerk.
Ohio.....	Swanton.....	Aug. 27.....	Imp. water works	W. B. Elwell, Clerk Trustees.
California.....	Oxnard.....	Aug. 27.....	Constrn. water works	City Trustees.
Canada.....	Winnipeg, Man.....	Aug. 28.....	Furnishing 88,000 ft. 36-in. pipe.....	Bd. of Control.
W. Virginia.....	Grafton.....	Aug. 28.....	Constrn. water works	W. C. Hanway, City Clerk.
Canada.....	Fort William.....	Aug. 28.....	Furn. 11,000 ft. steel or c-i. water pipe..	John Wilson, City Engr.
Ohio.....	Lakewood.....	Aug. 28, noon....	Constrn. main	J. W. Chrisford, Dir. Pub. Ser.
W. Virginia.....	Parkersburg.....	Aug. 29.....	Furn. c-i. water pipe.....	Frank Good, City Clerk.
Oregon.....	Clatskanie.....	Sept. 1 (about)...	Constrn. water works, cost \$30,000.....	J. M. Blackford, City Recorder.
Iowa.....	Sioux City.....	Sept. 3.....	Enlarging reservoir &c. tank.....	G. B. Healy, Commissioner;
So. Carolina.....	St. George.....	Sept. 10.....	Constrn. water works	D. H. Maury, Engr., Chicago.
So. Carolina.....	Blackville.....	Sept. 17.....	Constrn. water works, cost \$22,000.....	Commissioners.
New Jersey.....	Camden.....	Sept. 19, 8 p.m....	Constrn. 5,000,000 gal. pumping plant....	City Clerk.
LIGHTING AND POWER				
New Jersey.....	South Orange.....	Aug. 19.....	Furn. generating set.....	Village Trustees.
Illinois.....	Chicago.....	Aug. 21, noon....	Furn. 12,250 incandescent lamps	South Park Commissioners.
Minnesota.....	Madison.....	Aug. 22, 2 p.m....	Constrn. electric distribution system	J. H. Hayden, City Recorder.
New York.....	White Plains.....	Aug. 22, 7.30 p.m....	Furn. 43 arcs, 1200 c.p. & 700 incan., 20 c.p.	Board Trustees.
Louisiana.....	New Orleans.....	Aug. 23.....	Furn. & erect. piping aux. for pwr hse, No. 2.	F. S. Shields, Sec. Sew. & Watr. Bd
Indiana.....	Greencastle.....	Aug. 26.....	Light. city for prd of 10 yrs., begng July 1, 1913	S. C. Sayers, City Clk.
Canada.....	Edmonton, Alta.....	Aug. 27.....	Constrn. gas plant	City Commissioners.
Missouri.....	Trenton.....	Aug. 28, 6 p.m....	Installing vacuum vapor heating plant at City Hall	J. H. Flesher, City Clerk.
Canada.....	Regina, Sask.....	Sept. 14.....	Furn. steam turbine unit, switchb'd, &c.....	A. W. Pool, City Clerk.
Florida.....	St. Petersburg.....	Sept. 19, noon....	Supply, city with gas.....	W. F. Devine, City Clk.
Louisiana.....	New Orleans.....	Sept. 19.....	Constrn. piping & auxil. at power plant...	F. S. Shields, Secretary.
FIRE EQUIPMENT				
Minnesota.....	Austin.....	Aug. 17, 8 p.m....	Constrn. fire house	F. Cronon, City Recorder.
Utah.....	Logan City.....	Aug. 20.....	Furn. motor comb. pump, eng. hse & chmcl wgn	H. G. Hayball, Supt. Pub. Safety.
Indiana.....	Fort Wayne.....	Aug. 20, 5 p.m....	Fur. motor drvn. com. chem & hose wag.	Board Public Safety.
New Jersey.....	Newark.....	Aug. 20.....	Furn. motor-driven truck, also motor-driven high pressure service wagons...	Fire Board.
New Jersey.....	Trenton.....	Aug. 21, 2.30 p.m....	Furnishing 1 extra first steam fire engine	G. B. La Barre.
Canada.....	Saskatoon, Sask.....	Aug. 26, noon....	Furn. 1 motor comb. chem. and hose wagon and 1 motor-driven city service truck.....	City Commissioners.
Texas.....	Dennison.....	Aug. 30, 8 p.m....	Furn'g auto combin'n chem. & hose wagon.	J. D. Yocom, City Secy.
BRIDGES				
Illinois.....	Golden.....	Aug. 17, 2 p.m....	Constrn. reinforced concrete bridge in Northeast Township	J. H. Tenhaeff, Town Clerk.
California.....	Fullerton.....	Aug. 19.....	Constrn. 2 reinforced concrete bridges...	C. A. Giles, City Clerk.
New Jersey.....	Newark.....	Aug. 19, 2 p.m....	Constrn. several culverts	Jas. Owen, County Engr.
Tennessee.....	Chattanooga.....	Aug. 20, 10 a.m....	Constrn. 2 concrete bridges	Public Roads Commissioner.
Ohio.....	Cleveland.....	Aug. 21, 11 a.m....	Constrn. bridge work	J. F. Goldenbogen, County Clerk.
Ohio.....	Findlay.....	Aug. 23.....	Constrn. two 90-ft. spans	County Commissioners.
Ohio.....	Cleveland.....	Aug. 24.....	Constrn. steel arch and shoes.....	County Commissioners.
Indiana.....	South Bend.....	Aug. 26, 11 a.m....	Constrn. 3 bridges	C. Sedgwick, Auditor.
Oklahoma.....	Muskogee.....	Aug. 26, 10 a.m....	Constrn. 12 bridges	W. E. Looper, County Clerk.
New Jersey.....	Jersey City.....	Aug. 29, 1 p.m....	Constrn. highway bridge over river.....	Board Freeholders.
Canada.....	Calgary, Alta.....	Aug. 31 (ext. date)...	Constrn. 3 reinforced concrete bridges.....	J. M. Miller, City Clk.
Louisiana.....	Tallulah.....	Sept. 4.....	Constrn 3 bridges	W. H. Harvey, Sec'y.
MISCELLANEOUS.				
New Jersey.....	Trenton.....	Aug. 17, 2 p.m....	Constrn. jail	H. G. Hough, Ch. Com.
New Jersey.....	Haddon Heights.....	Aug. 20, 8 p.m....	Constrn. concrete wall	J. J. Albertson, Engr.
California.....	San Francisco.....	Aug. 21.....	Constrn. hospital buildings.....	Bd. Pub. Wks.
Mississippi.....	Bay St. Louis.....	Aug. 24, noon....	Filling with suet'n dredge 200,000 cu. yds.	R. W. Toulme, Mayor.
Florida.....	Pensacola.....	Aug. 29, 7.30 p.m....	Furn. uniforms for firemen and police....	Board Public Safety.
Maryland.....	Annapolis.....	Aug. 29.....	Building jail	N. H. Green, Ch. Committee.
Washington.....	Tacoma.....	Sept. 4, 5 p.m....	Clearing land and filling 400,000 cu. yds..	P. F. Clark, City Clerk.

STREET IMPROVEMENTS

Oak Park, Cal.—Petition has been filed asking for asphaltting of Maldrona ave.

Orange, Cal.—Plans have been ordered for more than a mile of street paving to be added to three blocks already in and four other blocks of paving previously ordered.

Sacramento, Cal.—City Engineer has been directed to draw plans and specifications for improvement of Eleventh st., from the base of B st. levee to C st., and of Ninth st., from B to D, with asphalt paving.

Sacramento, Cal.—Residents on Sec-

ond ave., Curtis Oaks, have filed petition asking that street be improved with 4-inch concrete hydraulic cement base, 1-inch concrete binder and 1 1/2 ins. of asphalt wearing surface. City Engineer Randle advised Commission that it would cost about 1 1/2 to 2 cts. more per sq. ft. than asphalt pavement on asphalt-concrete base, but could be re-surfaced cheaper. Matter was referred to Commissioner of Streets.

San Francisco, Cal.—Finance Committee of Supervisors has agreed to set aside \$2,000 for use of Park Commission in putting Junipero Serra and Sloat boulevards in good condition.

San Francisco, Cal.—Public Works

Board has ordered paving of Arguello boulevard, between Geary and Balboa sts., and has asked for bids for paving north side of Lincoln way from Twentieth ave. westward.

Santa Ana, Cal.—Fullerton will hold election and good roads bonds of \$132,000 will be resubmitted to voters, owing to technical flaw in former issue.

Santa Monica, Cal.—Proceedings have been begun for asphalt paving on Oregon ave., from Ocean front to easterly city limits, about two miles.

Bridgeport, Conn.—It has been decided to pave Fairfield ave. immediately.

Fairfield, Conn.—State road through

Fairfield from Ash creek to Mill river will be paved with asphalt.

Middletown, Conn.—Council has voted to macadamize Gisen st.

Naugatuck, Conn.—Boro authorities are considering advisability of building asphalt pavement on North Water st. Sum of \$4,000 has been appropriated for permanent pavement.

Gainesville, Fla.—Greatest need for Gainesville now is paved streets, and as bids are now being asked it is thought that work will begin within very short time. Bids comprise about four miles of principal thoroughfares of city, and as it is contemplated to begin work on these thoroughfares simultaneously, only few weeks will be required to complete work.

Live Oak, Fla.—At meeting of Board of County Commissioners appropriation of \$1,200 was made for extension of road to Seawannee Springs.

Melbourne, Fla.—Project is on foot for good road from Melbourne to Kissimmee. Commissioners of Osceola County are ready to build road as far as Brevard County line.

Milledgeville, Ga.—Good roads movement is now on foot here to build regular highway between Milledgeville and Macon by way of Grays, county seat of Jones County.

Waycross, Ga.—Resolution has been passed calling election for voting on bond issue of \$300,000 for street improvements. H. D. Reed, Mayor.

Cedar Falls, Ia.—Petition is in circulation asking for paving of Walnut st.

Washington, Ill.—City of Washington is going ahead with improvement of its streets, total cost of which will be over \$27,000. Washington st. is to be paved from west line of Main to alley west of Wood st. and will cost \$5,621.74; Peoria st. from west line of lot 23 to city limits except twenty-four feet at bridge over Farm Creek, and estimate is \$7,975.08; Catherine st. from Brick will be laid on six-inch base of crushed rock, and cost per yard for brick is figured at 90 cents and the rock at 40 cents.

Indianapolis, Ind.—At request of interested property owners who say they wish brick pavement, Board of Public Works has rejected bids for paving Ray st., from West to Dakota sts. Bids were asked for four kinds of material, but only bids submitted were on asphalt. New bids will be advertised for in hope that brick proposals will be submitted.

Indianapolis, Ind.—City Engineering Department is preparing plans for paving streets as follows: Capitol Ave., from Thirty-eighth to Fortieth st., estimated cost \$15,444; Thirty-first st., from Delaware st. to Central ave., estimated cost, \$7,482; Wyoming st., from Delaware to High st., estimated cost, \$8,559; Martindale ave., from Roosevelt ave. to Sixteenth st., estimated cost, \$11,900, and New Jersey st., from Thirty-eighth to Fortieth sts., estimated cost, \$10,984.

Michigan City, Ind.—Board of Public Works has passed resolution declaring necessity to exist for construction of cement sidewalks in either side of Holiday st., between Michigan st. and Springfield ave.

Lexington, Ky.—Ordinance ordering improvement of Ranson ave. with asphalt has been passed.

Lexington, Ky.—Ordinances ordering concrete sidewalks on number of streets have been passed.

Lexington, Ky.—Ordinance ordering construction of concrete sidewalks on Vine st., from Limestone to Patterson has been passed.

Lexington, Ky.—Joint resolution declaring improvement of Ayres alley from Main st. to Union Depot shed with asphalt or brick to be necessity has been passed. Also joint resolution designating portions of Washington, Alabama, and Scott aves., and Scott and Winslow sts. to be improved by construction with macadam or asphalt binder.

Paris, Ky.—Sum of \$2,500 has been appropriated for turnpike repairs.

New Iberia, La.—Police Jury has issued call for election of taxpayers of parish, to be held Sept. 10, for purpose of incurring debt of \$780,000 for constructing, improving and maintaining public roads of parish and issuing bonds for that amount.

Boston, Mass.—Board of Street Commissioners have ordered improvement of various streets.

Portland, Me.—Road between Bridgton and Fryeburg is to be repaired immediately.

Portland, Me.—Board of Trade favors bond issue of \$220,000 for street improvement.

Grand Rapids, Mich.—Work upon Kent County roads, for which county bonded itself for \$600,000, will be be-

gun shortly. It will be under supervision of Wm. Johnson, of this city.

Road Commissioners have not yet decided of whom they will buy their machinery, but not receiving any bids for construction of roads, have planned to go ahead themselves and will employ day labor plan of work.

St. Paul, Minn.—Board of Public Works has decided to order paving of Arcade st. on east side.

St. Paul, Minn.—Paving of Pleasant ave., from Sixth st. to Ramsey st., involving from \$19,956.71 to \$35,565.31, according to kind of material used, has been reported on favorably by Board of Public Works. Resurfacing of Portland ave., from Western ave. to Dale st., was favorably acted upon, ultimate cost to be approximately \$12,000. Next of series of big propositions to be considered will be paving of Dale st., from Grand ave. to Front st. This improvement involves approximately \$100,000.

St. Paul, Minn.—Petitions for total of 113½ miles of road to be built under Ellwell law, have been approved at meeting of the State Highway Commission. Expenditure of approximately \$132,000 will be involved in construction of roads. Petition for twenty-six and one-fourth miles of road along line of proposed Twin City to International Falls State road, to be built in Beltrami County at cost of \$27,300, have been received and approved. Petition for fifty and three-fourths miles of road in same county, between Farley and Tamarack, at cost of \$53,912, has been referred to Judge Stanton of district court of Beltrami County for approval.

Thirty and one-half miles of road will be built in Carlton County between Carlton and Brainerd, at cost of approximately \$40,000. Strip of five and three-fourths miles in Redwood county also has been approved, road costing \$7,444.

Petition for fifty-five miles of state road in Itasca County, along line of proposed Duluth to Crookston road has been received, but it was held up for examination by district engineer.

Jefferson City, Mo.—System of road building has been inaugurated by State which will eventually provide for outlay of about \$1,000,000,000.

Freehold, N. J.—State Road Commissioner has agreed to give Monmouth County Freeholders \$7,000 additional out of automobile fund provided that \$5,000 is spent on improvement of Ocean ave. through Long Branch.

Long Branch, N. J.—Resolution has been adopted by council declaring its intention to pave several streets throughout city.

Metuchen, N. J.—Sidewalk ordinance has passed on its final reading, and work of laying more than twenty miles of sidewalks will be commenced at once. Engineers are establishing grades and notices are being prepared ordering work done.

New Brunswick, N. J.—Board of Freeholders has decided to spend about \$12,000 for improvement of roads between Perth Amboy, Rahway and Park avenue roads leading to Plainfield.

Ocean City, N. J.—100 ft. wide boulevard from 34th st. to intersect State Ocean boulevard will be constructed. Board of Freeholders will advertise for bids.

Roselle, N. J.—Ordinance for curbing and guttering of Fifth ave., between Locust and Walnut sts., has been passed at meeting of Borough Council, and bids will be received for work, together with macadamizing of portion of Third ave.

Upper Penn Neck, N. J.—Voters of Upper Penn Neck Salem County, have decided to spend \$1,000 for improvement of Pennsgrove-Pennville road.

Amsterdam, N. Y.—It has been decided by Common Council to extend Arnold ave., 600 ft. westward.

Carthage, N. Y.—Carthage Board of Trustees expects to receive word shortly from State Highway Department at Albany in regard to placing of contract for State st. paving work. Bids are to be let in a few days.

Hornell, N. Y.—Resolutions have been unanimously adopted that county appropriate its share of money for building of Cohocton-Wayland, the Savona-Bradford, the Campbell-Risingville and the Canisteo-Hartsville roads.

Johnstown, N. Y.—Petitions for North Perry and Madison st. pavements have been accepted and resolutions passed declaring intention of council to pave streets mentioned in petitions.

Mechanicville, N. Y.—Mechanicville Automobile Association has adopted resolution approving of construction of state road from South st. in this village, west, through Halfmoon and Middletown, to Clifton park and to connect with state highway leading to Schenec-

tady.

Oswego, N. Y.—State Highway Commission has approved plans adopted by Common Council on July 23 for new East Fourth st. pavement. New pavement will be first to be built in this city connecting with State highway.

Poughkeepsie, N. Y.—Board of Public Works has ordered that both sides of Bement ave., from Mansion st. to Cottage st., should be improved with combined concrete curb and gutter and cement sidewalk; also that both sides of Fairview ave., from North st. to City Line should be improved with cement sidewalk. R. J. Shields, Clerk.

Rye, N. Y.—Board of Trustees of village of Rye has passed resolutions approving of twenty foot pavement on Boston Post road, of Hastings asphalt block.

Syracuse, N. Y.—State Fair Commission has perfected agreement with town of Geddes whereby boulevard to fair grounds will be repaired and made ready for heavy traffic. Cost is to be borne by town and commission.

Syracuse, N. Y.—Specifications for number of paving and resurfacing jobs have been posted in office of City Engineer.

Syracuse, N. Y.—Board of Contract & Supply has received bids for more than \$90,000. Bids for this and other contracts are as follows: Paving Park st., from Court st. to Pond st., stone curb and ordinary combination of materials on the sides of the street and railway tracks: Guy B. Dickison, asphalt and sand stone blocks, \$19,382.85, and asphalt and brick, \$19,228.85; F. J. Baker, asphalt and sand stone block, \$19,531.25, and asphalt and brick, \$19,426.25. Same street, stone curb and uniform pavement: G. B. Dickison, sand stone block, \$27,312.85; vitrified brick, \$20,123.85, and asphalt, \$19,255.25, brick, \$20,726.25, asphalt, \$19,396.25; Warner-Quinlan Asphalt Company, sand stone block, \$28,658.35, brick, \$21,200.35, asphalt, \$19,733.35. Same street, special combination and stone curb: G. B. Dickison, asphalt and sand stone block, \$20,518.75; asphalt and brick, \$20,346.55; Warner-Quinlan, asphalt and sand stone block, \$20,949.85. Paving Clinton st., from Temple st. to Tallman st., uniform pavement and stone curb, C. T. Hookway Construction Company, brick, \$15,007.50; macadam, \$14,757.50; G. B. Dickison, \$15,356.15; asphalt, \$14,456.65; T. C. Lowrey, brick, \$14,568.50; F. J. Baker, brick, \$15,613.50; asphalt, \$14,613.50; Warner-Quinlan, brick, \$15,413.90; asphalt, \$14,363.90. Same street, uniform pavement combination curb, C. T. Hookway Construction Company, brick \$13,707.50; macadam, \$13,473.80. Paving Oneida st., from West Adams st. to Tallman st., and Beacon st., from Tallman st. to Oxford st., uniform pavement, stone curb, Guy B. Dickison, brick, \$31,639.50; asphalt, \$29,868.30; Warner-Quinlan, brick, \$31,796.20; asphalt, \$29,729.80; F. J. Baker, brick, \$31,350.20; asphalt, \$29,579. Paving Sackett st., from Park ave. to West Genesee st., uniform pavement, stone curb, G. B. Dickison, brick, \$3,141.50; asphalt, \$3,061.50; Warner-Quinlan, brick, \$3,335.75; asphalt, \$3,215.75; F. J. Baker, brick, \$3,243.75; asphalt, \$3,163.75. Resurfacing East Onondaga st., usual combination, stone curb, Warner-Quinlan asphalt, \$18,062.50; G. B. Dickison, asphalt, \$18,782.50; special combination, stone curb, Warner-Quinlan, asphalt, \$17,910.50; G. B. Dickison, \$18,668.50; uniform pavement, stone curb, Warner-Quinlan, sand stone, \$33,132.50; asphalt, \$14,945; G. B. Dickison, sand stone, \$33,165.50; asphalt, \$15,737.50.

Saranac Lake, N. Y.—Grading and macadamizing Catherine st. between Bloomingdale ave. and Park ave., is the latest suggestion considered by committee. Estimates have been made upon cost of work, and is said to be in neighborhood of \$4,000.

Schenectady, N. Y.—Bond issue not to exceed \$50,000,000 is being considered for purpose of constructing and improving State and County highways.

Troy, N. Y.—City Council has decided to pave Eighth st. with bitulithic.

Akron, O.—On Sept. 3 taxpayers will vote on \$50,000,000 bond issue for rebuilding wagon roads in Ohio, and to provide for their continuous maintenance.

Goshen, O.—County Commissioners are advertising contract for half mile of crushed stone road on Mechanicsburg and Urbana pike.

Springfield, O.—Contract for improvement of one mile of road in Concord township was not awarded by County Commissioners, as no bids were received. Estimate of work made out by County Surveyor, it is said, is too low, which caused contractors not to accept. New estimate will be made and contract advertised over again.

Toledo, O.—Movement is on foot for widening of Jefferson ave.

Toledo, O.—Ordinance has been passed to repave St. Clair st., from Monroe st. to Emerald ave., at cost of \$50,000, paving of various streets.

Chester, Pa.—Resolution has been adopted for paving of Market st.

Erie, Pa.—County Commissioners have received work from state highway department to effect that work is to be commenced very shortly in this county. Bids for three are to be asked. These highways are: East Lake road, city limits to Harborcreek township line, to be paved with brick; 8,077 lin. ft. of brick block pavement, 14 ft. wide, situated as follows: From end of present improved road, station 1412/-33, near the property of George Runyon, and extending in a northwesterly direction through Conneaut township to station 1493/-10, near property of George Kennedy. For construction of 5,833 lin. ft. of brick pavement, 16 ft. wide, situated as follows: From east line of Albion borough and connecting with state highway in Conneaut township.

Greenville, Pa.—Ordinances for paving have been introduced. First ordinance provides for paving of South Mercer st., from Stewart ave. to borough line, distance of about 1,530 ft. Another ordinance provides for paving of North Mercer st., from Main to the south side of Shenango st., distance of 250 ft. Last introduced was for improvement of South Main st. to borough line, distance of about 1,400 ft.

Farrell, Pa.—Citizens have voted in favor of \$50,000 bond issue for street improvements.

Hazleton, Pa.—Resolution has been adopted for extension of paving on Laurel st., from Diamond ave. to First st.

Marcus Hook, Pa.—Bids are being received for paving of McClenachan Terrace.

Seranton, Pa.—Plans for construction of several miles of state highway in Lathrop township Susquehanna County, are now being completed by John I. Riegel, District Engineer, of State Highway Department, will extend from Foster post office to Brooklyn road.

Sharon, Pa.—Special election held in Farrell for voting on \$50,000 bonds for street improvements has been carried.

York, Pa.—West York borough is considering improving of West Market st., from city limits on west under State and plan. This would mean stretch of improved highway in borough covering about nine blocks, actual distance of a mile or more.

Sioux Falls, S. D.—Specifications for paving Ninth st. as prepared by City Engineer have been adopted; also resolution to pave Ninth st. from Dakota ave. to West ave.

Abilene, Tex.—Bond election held here for issuance of \$30,000 street improvement bonds carried 191 to 20 against. This \$30,000 issue will be used to connect paved streets in city with macadam county roads, which are built up to city limits.

Dallas, Tex.—City Secretary has been instructed to advertise for bids for improvement of Reiger ave., between Collett ave. and Munger Boulevard.

Fort Worth, Tex.—Plans devised by County Commissioners for building new roads under recent bond issue contemplate expenditure of \$600,000 for eight thoroughfares leading from Fort Worth like spokes of wagon wheel to county lines and expenditure of \$400,000 for lateral roads or feeders connecting main roads with small towns and well populated communities. It is intended to build roads with idea of permanency with concrete and steel culverts and bridges wherever needed.

Fort Worth, Tex.—Action looking toward expenditure of \$1,000,000 on road improvement in Tarrant County has been taken by County Commissioners' court providing for immediate commencement of work on eight roads to extend from Fort Worth to the Tarrant County border. The entire system, according to Clerk S. A. Quillen, of Commissioners' court, will mean building or working over of 140 miles of roads for cardinal and subcardinal lines, and approximately as much more for lateral lines.

Marshall, Tex.—Election for street bonds has been carried.

Taylor, Tex.—City will shortly ask for bids for paving 10 blocks in business section at cost of \$80,000.

Terrell, Tex.—City Commission of Terrell has asked for bids for construction of 3,300 feet of concrete sidewalk on South Rockwall ave.

Venus, Tex.—This precinct of Johnson County has voted in favor of bond issue of \$76,000 to be expended on good roads construction.

Eastville, Va.—Citizens of Atlanta district in recent election voted to bond district to build roads. Board of Supervisors of this county has advertised for sale bonds of Northampton County to amount of \$5,000 to be used in Franktown district for road building.

Hampton, Va.—Proposition is being considered for building attractive boulevard road from Phoebus to Buckroe Beach.

Newport News, Va.—Petition from property owners and residents of Twenty-seventh st. between Washington ave. and Huntington ave. has been presented, in which it was asked that that block be paved.

Norfolk, Va.—Resolution is being considered for appropriation of \$12,000 for wood block paving around market building on Brewer st., City Hall and Monticello aves.

Pulaski, Va.—Election held in this county upon question of Dublin district issuing \$100,000 of bonds for purpose of improving roads and bridges in that district, resulted in favor of bond issue.

Centralia, Wash.—Lewis County Commissioners have promised to pave two more miles of county road west of Centralia.

Wenatchee, Wash.—Business section will be paved. Improvement will cost about \$100,000.

Janesville, Wis.—Superintendent of Streets has been directed to repair Beloit rd., from Eastern ave. to cement bridge across Spring Brook.

CONTRACTS AWARDED.

Athens, Ala.—By city, for 8,000 sq. yds. of cement sidewalks, 725 sq. yds. of vitri. brick cross-walk and 650 sq. yds. of crushed limestone screening sidewalk, to C. L. Peckinpah, of Sheffield, Ala., for \$8,965.

Chico, Cal.—By Town Trustees to Ransome-Crummey Co. for paving part of Fifth st. west of Main st.

Glendale, Cal.—To R. Sinclair, of this city, for doing grading, curbing and sidewalk of new 80-acre subdivision in Richardson tract, in southern end of this valley.

Sacramento, Cal.—To Clark & Henery, for improving Sixteenth st., from M to P with asphalt macadam and to McGillivray Construction Co. for building curbs and gutters on same street.

Torrington, Conn.—Highway Commissioner James H. MacDonald has opened bids for construction of State roads in various towns and in several instances lowest estimates were submitted by Torrington parties. Caesar A. Rossi, of Torrington, was lowest bidder for 14,675 lineal feet of gravel macadam road in town of Washington. His estimate follows: \$2.29 a lineal ft. for macadam gravel; \$3.29 a lineal ft. for macadam gravel, with telford base; \$1.25 a lineal ft. for hubble drain; \$9 a cubic yd. for concrete work; \$7 a cubic yd. for masonry; \$5 a cubic yd. for dry rubble. Torrington Construction Co. also furnished lowest estimate for fourth section of work in town of New Milford, bid being: \$1.54 a lineal ft. for macadam and gravel; \$2.44 a lineal ft. for macadam gravel and telford base; \$1 a lineal ft. for rubble drain; \$7 a cubic yd. for concrete work; \$6 a cubic yd. for masonry; \$5 a cubic yd. for dry rubble. B. D. Pierce, Jr., Co., Bridgeport, was lowest bidder for 14,464 lineal ft. of gravel or graded road in town of Litchfield, and Goodman & Trumbull, of Litchfield, submitted lowest estimates for work on second and third sections of contract in town of New Milford. It is expected that contracts for work will be awarded within few days. They will call for expenditure in all towns of upward of \$225,000.

Titusville, Fla.—For road work from Titusville to south end of Delespine grant, about 9½ miles, to Titusville Fruit & Farm & Farm Lands Co.

Belvidere, Ill.—By Board of Local Improvements for improvement of Buchanan st., from westerly line of Whitney st. to easterly line of Caswell st., by grading, curbing and macadamizing, to Fair & Taylor, at their bid of \$2,825.

Belvidere, Ill.—By Board of Local Improvements for improvement of West Locust st. to Fair & Taylor, at \$12,395.

Bloomington, Ill.—By Board Local Improvements, for paving Normal and Gregory aves., to Roy L. Williams for \$10,319.

Canton, Ill.—By Board of Local Improvements, for paving North First ave., to Roller & Savill for \$19,201.

La Salle, Ill.—To Keys & McNamara, Newstadt Bldg., at \$20.00, for vitrified brick paving in Gooding st.

Monmouth, Ill.—For paving North A st., by Board of Local Improvements, to Burlington Construction Co., of Bur-

lington, Ia., for \$34,760.

Des Moines, Ia.—By City Council as follows: J. L. Hansman, Forty-eighth st., and Hickman ave., 4,870 lineal ft. of concrete curbing, J. Horabin, 222 Fifth st., for paving in sundry streets, \$32,576. Fred Carrs is City Engineer.

Dubuque, Ia.—For paving Grandview ave., to Tibey Bros. at about \$12,000.

Fairfield, Ia.—For street improvements as follows: 1,720 yds. wood block paving and 1,100 ft. cement curb and gutter, Spalding & Kearns; 4,190 yds. brick pavement, with asphalt filler, and 2,720 ft. cement curb and gutter, 1,375 yds. grading.

Iowa City, Ia.—Geo. Trumpp, of this city, was lowest bidder on cement walks and crossings recently let by city.

Connersville, Ind.—For two and one-half miles of crushed stone road in Connersville township to Paul Carlos, of this city, by County Commissioners. Contract price was \$22,400. Work will begin as soon as bonds are issued. This road is to be built under three mile law. It will run from west end of Eighth st., at west corporation line of city, to new Dale cemetery, thence northwestward to Harrison township line.

Baltimore, Md.—State Good Roads Commission has awarded two contracts. First was for improvement of road from Woodbine to Day, in Carroll County, and second for improvement of road from Middleburg Station to Mount Union. First was awarded to Frech & Allen at \$14,941.88, and second to Thomas, Poole & Hunter at \$13,545.

South Hadley, Mass.—To Lane Construction Co., to build State road from Woodbridge st. over the Amherst road; estimated cost, \$20,000.

Detroit, Mich.—By Department of Public Works, for paving streets and allays: Isabella Ave.—From Kales st. to Michigan ave., 26 ft. wide, with cedar blocks on concrete foundation and Berea, Medina or any other curbstone that may be bid upon and ordered: Amherst curb—T. E. Currie, \$5,644.54; Julius Porath, \$5,722.35; J. S. Affeld, \$5,690.88; J. A. Mercier, \$5,545.15. J. A. Mercier is the lowest bidder; average cost per sq. yd., including inspection, etc., \$2,409. Kales St.—From Beecher st. to Isabella ave., 26 ft. wide, with cedar blocks on concrete foundation and Berea, Medina or any other curbstone that may be bid upon and ordered: T. E. Currie, \$2,127.98; Julius Porath, \$2,183.94; J. S. Affeld, \$2,173.78; J. A. Mercier, \$2,106.02. J. A. Mercier is lowest bidder; average cost per sq. yd., including inspection, etc., \$2,658. Lillibridge Ave.—From southerly terminus to the north curb line of Edlie st., 26 ft. wide, with cedar blocks on concrete foundation and Berea, Medina or any other curbstone that may be bid upon and ordered: T. E. Currie, \$5,812.52; W. W. Hatch & Sons Co., \$5,956.03; Julius Porath, \$5,959.87. T. E. Currie is lowest bidder; average cost per sq. yd., including inspection, etc., \$2,357. Lillibridge Ave.—From Kercheval ave. to Waterloo st., 24 ft. wide, with cedar blocks on concrete foundation and Berea, Medina or any other curbstone that may be bid upon and ordered: T. E. Currie, \$6,004.26; W. W. Hatch & Sons Co., \$6,167.78; Julius Porath, \$6,178.95. T. E. Currie is lowest bidder; average cost per sq. yd., including inspection, etc., \$2,507. Montclair Ave.—From southerly terminus of Montclair ave. to Jefferson ave., 25 ft. wide, with cedar blocks on concrete foundation and Berea, Medina or any other curbstone that may be bid upon and ordered: T. E. Currie, \$6,691.60; W. W. Hatch & Sons Co., \$6,853.81; Julius Porath, \$6,885.50. T. E. Currie is lowest bidder; average cost per sq. yd., including inspection, \$2,463. Waterloo St.—From Canton ave. to Helen ave., 26 ft. wide, with cedar blocks on concrete foundation and Berea, Medina or any other curbstone that may be bid upon and ordered: T. E. Currie, \$2,002.66; W. W. Hatch & Sons Co., \$2,058.72; Julius Porath, \$2,050.32. T. E. Currie is lowest bidder; average cost per sq. yd., including inspection, etc., \$2,637. Bewick Ave.—From Charlevoix ave. to city limits, 26 ft. wide, with concrete paving and Berea, Medina or any other curbstone that may be bid upon and ordered: T. E. Currie, \$9,403.39; W. W. Hatch & Sons Co., \$9,864.63; Julius Porath, \$9,863.53. T. E. Currie is the lowest bidder; average cost sq. yd., including inspection, etc., \$2,324. Alley No. 255—The east and west alley in the block between Brush and Beaubien, Rowena, Brady sts., 20 ft. wide, with concrete paving: T. E. Currie, \$1,050.90; Garner Bros. Co., \$893.67; Otis Cement & Construction Co., \$1,007.42. Garner Bros. is lowest bidder; average cost per sq. yd., includ-

ing inspection, etc., \$2,225. Contracts were awarded in each case to lowest bidder.

Monroe, Mich.—By City Council for paving as follows: Second st., asphalt, Toledo Asphalt Block Co., Toledo, O., \$35,811; Elm ave., concrete, Fidelity Construction Co., Ann Arbor, Mich., \$18,831.40.

St. Paul, Minn.—Contract for grading Louth st., from Hatch st. to Front, was awarded to Christ Johnson on bid of \$1,627.87. Estimate for work prepared by engineer was \$1,125. Keough Bros. drew contract for grading St. Clair st., from Fairview to Snelling ave., with bid of \$2,561. Engineer's estimate was \$2,340. Grading of Marlboro, from Laurel ave. to Dayton ave., estimated at \$630, went to Christ Johnson for \$783.49.

Roselle Park, N. J.—By Borough Council, for paving of Chestnut st. to Bamberger-Chapman Co. on basis of Dollarway system.

Albany, N. Y.—By Board of Contract & Supply, contracts as follows: Paving First st., from Northern Blvd. to Judson st., to B. F. Mulderry, at \$16,687.36; improving Mercer st., from Lake ave. to Quail st., T. Henry Dumary, \$11,089.80; improving Elk st., from Northern Blvd. to Lexington ave., J. M. Holler, \$10,385.25.

Avon, N. Y.—To Wm. McCarty & Philip Wall, of Livingston, from State Highway Dept. to pave with asphalt on highway between Avon and Dansville, distance of about 30 miles.

Newburgh, N. Y.—For paving Montgomery st., from First to South st., with bitulithic pavement and for placing stone curbing on either side of thoroughfare, by City Council, to Abner M. Harper for \$10,685.50. Following are bids received: Abner M. Harper, stone curb, with bitulithic pavement, \$10,686.50; stone curb, with Hassam pavement, \$10,686.50; concrete curb, with bitulithic pavement, \$11,474; concrete curb, with Pennsylvania clay block, \$12,281.50; stone curb, with Mack block, \$11,655.50; concrete curb, with Mack block, \$12,443. Connecticut Hassam Paving Co., Hassam pavement, with stone curb, \$9,414; Hassam pavement with concrete curb, \$9,181.50. Warren Bros. Co., bitulithic, with stone curb, \$12,337.90; bitulithic, with concrete curb, \$11,635.90. Jova & Kehoe, stone curb, with Pennsylvania clay block, \$12,972.40; stone curb, with Mack clay block, \$13,513.20; stone curb, with Toronto clay block, \$12,972.40; stone curb, with Williamsburg shale block, \$13,209; concrete curb with Pennsylvania clay block, \$13,214.00; concrete curb, with Mack clay block, \$13,753.20; concrete curb, with Toronto fire clay block, \$13,212.40; concrete curb, with Williamsburg shale block, \$13,449.

Oneonta, N. Y.—To John H. Nelson & Co., of Herkimer, for paving with brick on S. Main, Lewis st. and Delaware ave. at \$2.35 per sq. yd., and with bituminous macadam on Dietz st., at \$1.25 per sq. yd.

Port Washington, L. I., N. Y.—John Mitchell, of Port Washington, for sidewalks on Shore road at \$4,069.

Rochester, N. Y.—For paving small part of Edinburg st. to Whitmore, Rauber & Vicinus for \$743.60.

Gurnsey, O.—By Board of Control to pave Ninth st. to Cislser & Morse, of Marietta, at \$16,400. Noble Brick Co., of Glenwood, is said to have secured contract to furnish brick at 65.5 cts. per sq. yd. Bids received for paving Highland ave. have been rejected as being too high.

Lorain, O.—By Dir. of Public Service, for repaving Broadway, to Ohio Eng. Co. of Elyria, for \$62,110.

Massillon, O.—For paving of West Tremont st., from end of the present paving at Bucher st. to city limits, to local firm of Ervin & Clementz at \$5,255. Only other bidder was A. F. Wendling, of this city, whose bid was \$5,294.

New Lexington, O.—By Village Council for paving Maple Heights st. to Henderson Bros. & Bock, of Coshocton, at \$6,856.

Xenia, O.—By State Highway Department for grading and paving with gravel macadam Wilmington rd., State Highway "F" pet. No. 524 in Caesar Creek township, to Wilson Engineering & Cont. Co., Xenia, at \$3,642.

Altoona, Pa.—For improvement of Buckhorn road to H. G. Hinkle.

Altoona, Pa.—Upon opening bids for resurfacing of Seventh ave. and other thoroughfares members of Board of Public Works found that lowest paving bid was received from Union Paving Company of Schenectady, N. Y., bid 96 cts. per sq. yd. Bids are as follows: Elder Paving Company—For removing old asphalt, 9 cts. per sq. yd.; for resurfacing with asphalt, \$1.20 per sq. yd. Union Paving Company—For removing old asphalt, 12 cts. per sq. yd.; for resurfacing

with asphalt, 96 cts. per sq. yd. Standard Bitulithic Company—For removing old asphalt, 20 cts. per sq. yd.; for resurfacing with bitulithic, \$1.26 per sq. yd.; with asphaltum concrete, \$1.06 per sq. yd.

Erie, Pa.—By State Highway Department, as follows: 8,077 ft. of brick pavement, in Conneaut, Elmer M. Love & Son, Corry, Pa., \$29,977.05; 5,833 ft. of brick pavement in Albion borough, H. O. Putnam and E. W. Brown, Oil City, Pa., \$25,353.90.

Franklin, Pa.—To Northwestern Construction Co., to pave with Bessemer brick 13th st., also Liberty st., at \$11,284 and \$14,491, respectively.

Hollidaysburg, Pa.—By State Highway Department, to H. G. Hinkle, Altoona, Pa., at \$109,676.40, for construction of asphaltic-concrete pavement, on concrete foundation, in Logan.

Lebanon, Pa.—By State Highway Department, to M. Bennett & Sons, Indiana, Pa., at \$22,908.07, for construction of 7,400 ft. of Telford-macadam pavement in Bethel.

Pittsburgh, Pa.—By Commissioners, for building West Run road, in Mifflin Township, about 1.9 miles, to Neelen & Daley for \$46,337, and Spring Run road, Crescent Township, about 1.75 miles, to John F. Howley & Co. for \$30,707.

Providence, R. I.—State Board Roads, for constructing section of State highway in Smithfield and North Smithfield, about 9 miles in length, to Amos D. Bridges Sons, of Hazardville, Conn., for \$52,715.

South Bethlehem, Pa.—To Richard P. Bennis, of Philadelphia, for 18,000 sq. yds. of South Bethlehem st. paving on a bid of \$31,990.50.

Dallas, Tex.—For paving of Live Oak st. with Thuring vitrified blocks, to Municipal Paving Co.

Jackson, Tenn.—To Indian Refining Co., by city, for application of 50,000 yds. of liquid asphalt on streets of city. Work will cost about \$10,000.

Norfolk, Va.—For asphalt paving on 10th, 13th, 14th and 15th sts. and Colley ave., by Board of Control to Continental Public Works Co., at \$1.70 sq. yd.

Colfax, Wash.—To Warren Constr. Co., for paving Perkins ave., at \$21,627.

Ellensburg, Wash.—To Independent Asphalt Co., Northern Bank Bldg., Seattle, at \$32,591, for paving of E. Third st. with asphalt.

Mechanicsville, Wis.—By County Committee on Highways, Bridges and Railroads, for grading and paving east approach of new Grand ave. viaduct to E. C. Blake at 65 cents a cu. yd. for grading and 90 cents sq. yd. for paving.

Milwaukee, Wis.—By Public Works Commissioner F. G. Simmons, for 45,522.58 yds. of bituminous asphalt paving as follows: Boyce Constr. Co. four contracts as follows: Linnwood ave., Prospect ave., and Bartlett ave., east street at \$1.45 per sq. yd., and Oakland ave. at \$1.50; Badger Constr. Co., Martin and Milwaukee sts., at \$1.48 sq. yd. Only one bid for paving of Folsom Place and Locust st. was received at \$1.75 sq. yd., and was rejected. Work will be readvertised. The Badger Constr. Co. has secured contract to pave with bituminous asphalt on Lincoln ave., at \$1.53 sq. yd.; D. M. Sneddon Co. contract for macadamizing Twentieth ave. at \$1.05 sq. yd., and macadamizing Hanover st. at 99 cts. sq. yd.

Milwaukee, Wis.—Sewer and street paving contracts amounting to over \$50,000 have been let by Public Works Department. George E. Zimmerman was awarded majority of contracts in west sewerage district at prices varying from \$1.12 to \$2.40 a lineal foot. Others awarded contracts were M. Synowitz, 445 ft. at Poplar and Vliet sts. at \$1.75 a foot; F. H. Nakleski, 454 ft. at Arthur ave. and Thirty-second st. at \$1.63 a foot; T. Szukalski, 440 ft. at Twenty-sixth and Forest Home aves. at \$1.62 a foot, and M. Seynowitz, 228 ft. at Ring st. and Concordia ave. at \$1.90 a foot. The low bid, \$13,655.26, for macadamizing and grading on Twenty-second ave., was handed in by the D. M. Sneddon Co. This company also was awarded the paving on California st. on a bid of \$2,554.99.

Parkersburg, W. Va.—For paving Quincy, Eleventh, Seventeenth and other streets, to C. Kennedy, Parkersburg.

Pullman, Wash.—By City Council for paving with bitulithic 14 blocks in College Hill District, and 6 blocks in Sunnyside District to Federal Const. Co., of San Francisco, Cal., \$16,989 for Dist. No. 10 and \$35,604 for Dist. No. 11; Barber Asphalt Paving Co., \$52,734; Warren Constr. Co., \$56,865; The Bitumas Co., \$19,628 for bituminous paving in Dist. No. 10 and \$37,603 for Dist. No. 11; The Hassam Constr. Co., \$47,075 for hassamite in both districts.

Seattle, Wash.—For paving Thirty-third ave., to Fenn & Brennan for \$14,285. Also by Board of Park Commissioners, to McGuire & Moon, to pave 13,000 sq. yds. of Ravenna boulevard, at \$1.18 per sq. yd.

Vancouver, B. C.—By City Council, the following contracts for street improvement work: Wood block pavement on Broadway, from Bridge to Laurel sts., to Laplaca Bros., at \$47,636; for resurfacing Main st., from Hastings to Maris st., at \$19,349.

SEWERAGE

Sacramento, Cal.—City Engineer has been directed to make necessary repairs on S st. sewer, between Seventh and Eighth.

San Jose, Cal.—Bids will be readvertised for construction of sewers of section B.

Denver, Colo.—Board of Public Works is planning to construct largest sewer in Denver at cost of \$2,000,000. Proposed improvement is storm sewer and will drain practically entire territory from Columbine st. east to city limits, including entire Montclair district and embracing nine and one-half miles square, largest district drained by any sewer of the kind.

Bridgeport, Conn.—Plans for sewer reconstruction embracing nearly all East Side have been submitted by City Engineer A. H. Terry, and approved for consideration of Common Council. New plan is to replace present small sewer system on East Side with more adequate facilities to provide for future.

Plainville, Conn.—Plans and specifications for sanitary sewer system, which are being prepared by Joseph N. MacKernan, are nearly ready, and as soon as they are they will be turned over to committee for further consideration.

Newark, Del.—Newark will ask next General Assembly to authorize town to borrow funds to build sewer system.

Fort Dodge, Ia.—Resolution of necessity has been passed calling for construction of following sanitary sewers: (1) Beginning at Nineteenth st. and Fifth ave. south, south to a point 100 ft. north of Seventh ave. south. (2) Beginning at Ave. C and G st., West Fort Dodge, west on G st. to Ave. F, thence west to C st. Two petitions for construction of two other sanitary sewers have been presented to council and referred to City Engineer Fort.

Indianapolis, Ind.—Plans have been completed for following local sewers: Churchman ave., from alley north of Prospect st. to Woodlawn ave., estimated cost \$1,420; alley east of Oxford st., from Eighteenth st. to alley north of Seventeenth st., estimated cost \$1,118, and alley east of Temple ave., from alley north of New York st. to alley south of Michigan st., estimated cost \$710.

Hightstown, N. J.—Bids will be asked at once for construction of sewerage system and disposal plant.

Westfield, N. J.—Lowest bid for construction of sewers was received from William Horne, of New York.

St. Joseph, Mo.—Board of Public Works has decided to begin construction of sewer at east end and carry work as far west as money appropriated will permit. This means that sewer will be extended to point near Bartlett st.

Syracuse, N. Y.—Rhoades & Co., of New York, will be awarded \$200,000 sewer bonds.

Hamilton, O.—Bids will be received at office of City Auditor, H. A. Grimmer, of City of Hamilton, until noon, 12 o'clock, on 26th day of August, 1912, for purchase of \$25,000 worth of storm sewer bonds.

Eugene, Ore.—Chairman Bell has presented complete plans and specifications for trunk sewers setting forth in detail conditions under which bids shall be made and the manner in which the sewer shall be constructed. Ordinances has been passed adopting the specifications as official specifications for all sewer construction in the city of Eugene.

Conneaut, Pa.—It is very probable that State Board will order erection of sewage disposal plant, which will cost about \$100,000.

York, Pa.—Plans for new storm water sewers previously decided upon have been adopted upon request of City Engineer Warner.

Dallas, Tex.—City Secretary has been instructed to advertise for laying 6-in. sanitary sewer in Pearl st., from Eakin st. to the Houston and Texas Central Railroad, and in Runnels and Taylor sts., from Pearl st. to Houston and Texas Central Railroad.

Mart, Tex.—Local capital will be used in constructing modern sewer system

for city. It is expected that about \$35,000 will be expended in improvements.

Waco, Tex.—Taxpayers have voted bond issue of \$35,000 for storm sewers.

Pulaski, Va.—Order has been entered in Circuit Court of Pulaski County calling for special election to be held Sept. 1, to vote on bond issue for \$50,000 for sewerage system for city of Pulaski.

North Yakima, Wash.—State Highway Engineer W. J. Roberts has been retained by city of North Yakima as consulting engineer in preparation of plans for \$400,000 sewer system, with garbage plant attached, bonding for which will be submitted to people for vote shortly.

Racine, Wis.—Petitions asking Common Council to take prompt action so that question of whether or not \$185,000 bonds should be issued for trunk sewers in outskirts of city can be submitted to vote of the people next November will be circulated in few days.

Superior, Wis.—Police and fire pension boards were highest bidders for \$19,000 issue of sewer bonds and have been awarded entire lot.

CONTRACTS AWARDED.

Greenfield, Ind.—By County Commissioners to Summitville Bridge Co., to build Andrew Briney ditch for \$5,993. This will be largest tile drain ditch ever built in this county. It will extend full length of county infirmary farm.

Kokomo, Ind.—By Board of Public Works, following sewer contracts: Prairie Creek, concrete sewer, ranging from 5½ ft. to 6½ ft. and 7 ft. in diameter, Michaels & Munich, Marion, Ind., \$33,419.10; Phillip st., vitrified pipe sewer, 12, 18, 20 and 24 ins., Michaels & Munich, Marion, \$10,319. Jackson Morrow is City Engineer.

Rochester, Ind.—By City Council to Ritchey & Robbins, at \$1,297.50, for construction of sewer in Fulton ave., from Second to Seventh st.

McPherson, Kan.—By City Council to McElvain & Ramsey, Topeka, Kan., at \$19,190.80, for construction of sewer.

Flint, Mich.—By city, for construction of a 54 and 60 in. storm water sewer, about 3,200 ft., to William Finley, of Flint, at following bid: 1,607 ft. 54-in. vitr. sewer block, \$6.62; 1,578 ft. 60-in. vitr. sewer block, \$7.27; 8 manholes, each \$30; 10 catch basins, each \$30; 10 catch basins, each \$35; 12 cubic yds. concrete bulkhead, \$4.66; total, \$22,756.

Iron Mountain, Mich.—For construction of sewer, lowest bid was received from J. R. Holfelty Co., at \$7,900. Other bidders were John Obermeyer, \$9,487, and R. J. Wilson, \$8,769. J. M. Goldsworthy, City Engineer.

Eveleth, Minn.—For constructing sewers on Fayal and Roosevelt aves., and water main on Roosevelt ave. to east end of Fourth Ward, to Pastoret-Lawrence Co. for \$9,606.

Kansas City, Mo.—By Board of Public Works, for building first section of new sewer south of Brush creek, to Foxhall P. McCormick, of Parker-Washington Co. of Kansas City, for \$54,000.

St. Joseph, Mo.—For extending Black-snake main sewer from Broadway st. to Krug Park pl., by Board of Public Works to Skilbred & Land, for \$17,551.

Long Island City, L. I., N. Y.—For sewers as follows: Dutch Kills pl. and Queens pl., Long Island City, Manley and Mount sts., to Evergreen Constr. Co., \$5,326; Bleeker st. and Fairview ave., to Clancy & Van Alst, \$7,299; Creek st., Nott ave., Davis and other streets, to Degnon Realty Co., \$25,105; Putnam ave., from Seneca to Forest, Ridgewood, to Clancy & Van Alst, \$7,912, and Ely ave., from Harris to Crown st., to Greene Constr. Co., \$4,407.

Schenectady, N. Y.—By Board of Contract and Supply to Charles Ippolito, of Orange, N. J., contract for 4½-mile surface water sewer system in Tenth ward for \$52,120.25.

Newark, O.—To John John W. Heller, city, at \$92,689.75, for construction of Vallsburg drainage system.

Pawhuska, Okla.—By City Council to H. C. Jacobs, city, for construction of sanitary sewers in Dist. Nos. 2 and 3.

Philadelphia, Pa.—Sewer construction to value of \$255,467 have been awarded by Assistant Director Reed. Joseph Lombardi was awarded work of building extension of Gunner's Run extension sewer in Indiana st., from Mutter to Fourth st., for \$70,819.10; Donato Delise, contract for a sewer in Fifty-seventh st., from Lebanon to Susquehanna ave., for \$4,930; David McMahon, for main sewer in Hartwell lane, from Huron to St. Martin's lane, for \$20,947; Patrick Durkin, for Rock Run sewer in Fisher ave. across Sixth st., for \$1,350; Joseph Lombardi, Shunk st. sewer, from Fifth st. to Broad st., for \$50,940, and Wissahickon high level cut-off sewer, in Stok-

ley st., from Crawford to Bowman st., to Robert Higgins, for \$23,181. Reconstruction of old sewers between Fortieth and Forty-third and Sansom and Market sts. has been awarded to David Peoples, to cost about \$55,000.

Salt Lake City, Utah.—By city, for paving extension No. 74, to Bird-Mendenhall Construction Co., at \$10,800. Work consisted of 1,327 sq. yds. Gilsonite paving, at \$1.99 per sq. yd., and 2,586 sq. yds. at \$1.65. Also for paving extensions, Nos. 78, 79, 80 and 81, to G. A. Heman, at \$167,307. Work consisted of 6,067 sq. yds. Gilsonite paving at \$1.89 per sq. yd. Other bids received for No. 74 are as follows: P. J. Morgan, \$11,283; Smith Bros., \$11,553; Strange-Maguire Paving Co., \$12,865; A. A. Clark Co., \$13,093, and Campbell Bldg. Co., of Utah, \$13,808. Other bids received on Nos. 78 to 81, are as follows: Bird-Mendenhall Construction Co., \$171,350; P. J. Moran, \$180,252; Strange-Maguire Paving Co., \$189,017; Smith Bros., \$191,647; A. A. Clark Co., \$193,588, and Campbell Bldg. Co., \$213,805. D. H. Blossom, City Engineer.

Greenville, S. C.—For laying about 18,000 additional feet of sanitary sewerage to Porter & Boyd, of Charlotte, N. C.

La Crosse, Wis.—To Olaf Swennees for sewers on south side to cost \$7,100.

Milwaukee, Wis.—To build protection crib for Kinnickinnic River flushing tunnel, to C. H. Starke Dredge & Dock Co. of Milwaukee for \$17,900.

WATER SUPPLY

Santa Ana, Cal.—Fullerton will hold election to vote upon \$80,000 bond issue for municipal water works plant. Plans for the system already have been prepared by engineers.

Tulace, Cal.—Election will be held Sept. 12 for voting on \$100,000 bond issue for municipal water works.

Venice, Cal.—City Trustee Gerety is urging thorough investigation of water situation in Venice. He advocates municipal ownership and firm hold on all water rights in "back country" that may or should belong to public.

Conyers, Ga.—\$40,000 bond issue has been voted for water works system.

Macon, Ga.—About thirty-five miles of new water main will be laid in East Macon, North Highland and Vineville just as soon as possible.

Milltown, Ga.—Milltown has voted bonds to put in waterworks and electric lights as follows: \$10,000 for waterworks and \$5,000 for electric lights.

Oakhurst, Ga.—Bond issue of \$18,000 for water works and sewerage systems will be voted on Aug. 24.

Waycross, Ga.—Resolution has been passed calling for election for voting on bond issue of \$30,000 for waterworks improvements. H. D. Reed, Mayor.

Fort Dodge, Ia.—Bond issue of \$80,000 is being considered for extension of water works system.

Moline, Ill.—Bond issue of \$164,000 has been voted for improving water works system.

Michigan City, Ind.—Board has also decided to purchase 5,500 ft. of water pipe for extension of city water system.

South Bend, Ind.—Improvements to city water works department to cost \$57,605, as outlined by Burns & McDonnell, of Kansas City, Mo., consulting engineers, have been approved by City Council. Agreements between Board of Public Works and companies securing contracts, were ratified by Council. Three companies were awarded contracts as follows: Allis-Chalmers Company of Milwaukee, Wis., pumps, \$32,159; S. Freeman & Sons' Manufacturing Company, of Racine, Wis., two boilers and three stokers, \$10,975, and Wiederholdt Construction Company, of St. Louis, Mo., smokestack, \$4,480.

Medicine Lodge, Kan.—Bond issue of \$40,000 has been voted for extension of water works system.

Lafayette, La.—Ordinance has been adopted calling election on Sept. 16 for voting on improvement of waterworks and electric light plants.

Hermann, Mo.—Bond issue of \$35,000 has been voted for water works system.

Lovell, Mass.—Municipal Council has voted to borrow \$75,000 for improvement and extension of water service.

Merrimac, Mass.—Extension of water system is being considered.

St. Paul, Minn.—Superintendent Nussbaumer has been authorized to prepare plans and estimates for increasing water supply at Lake Como. Mr. Nussbaumer roughly placed cost of raising lake one foot at from \$12,000 to \$15,000.

Vicksburg, Miss.—Special meeting of City Council was petitioned by number of citizens to decide on election called

to have vote of people as to whether city should purchase water works plant or grant franchise to Charles Zilker, who desires to buy the plant.

Coleridge, Neb.—Bond issue of \$8,500 will shortly be voted for extension of mains and erection of steel tank.

Brockport, N. Y.—Village Board of Trustees has decided to submit offer of \$60,000 to Brockport-Holley Water Co. for its mains, hydrants, standpipe and distribution system within village limits.

Newburgh, N. Y.—Proposition to issue \$50,000 worth of bonds for use of Water Board has been carried.

Dayton, O.—Election will be held September 3 for voting on \$900,000 bond issue for improving and extending water works system. Edward Philipps is Mayor.

Calvin, Okla.—Bond issue of \$17,500 has been voted for water works.

Eufaula, Okla.—Bonds in sum of \$75,000 have been voted for extending water and sewer systems.

Marcus Hook, Pa.—Borough Council has notified water company to lay mains on Fifth, Seventh and Ninth sts.

Charleston, S. C.—Bond issue is being discussed for installation of new water and electric lighting plants.

Wagner, S. D.—Bond issue of \$3,000 has been voted for extending water system.

Yankton, S. D.—Plans are being prepared for construction of water works system.

Corpus Christi, Tex.—Purchase of pump with capacity of 500,000 gallons has been authorized.

Salt Lake City, Utah.—After inspection of lakes at head of Big Cottonwood canyon representatives of City Commission, Engineering and Waterworks Department of Salt Lake decided to recommend to commission that immediate survey of lakes be made to determine what work will have to be done and what cost will be to convert lakes into storage reservoirs.

Fond du Lac, Wis.—Bond issue of \$25,000 will be used for improving water works.

Onoka, Wis.—Installation of filter plant is being considered by City Council.

CONTRACTS AWARDED.

Augusta, Ga.—By waterworks committee of City Council for new filters, to firm of Walton & Wagner of Atlanta. Bid was for four units at cost of \$7,575, and if two additional filters are installed price will be about \$10,500.

Moline, Ill.—By Board of Local Improvements to Moline Heating and Construction Co., at \$31,938.40, for construction of water and sewer mains in Twenty-seventh st.

Melvin, Ill.—For constructing water mains, by Board of Local Improvement to E. J. Westbrook, of Paxton, for \$10,640.

Paoli, Ind.—By Town Board to Wm. G. Hoffman, French Lick, Ind., for construction of a reservoir.

South Bend, Ind.—For improvement to water works by City Council, as follows: To Allis-Chalmers Co., of Milwaukee, Wis., pumps, \$32,150; S. Freeman & Sons Mfg. Co., Racine, Wis., 2 boilers and 3 stokers, \$10,975, and the Wiederholdt Constr. Co., St. Louis, Mo., 185-ft. smokestack, \$4,480.

South Bend, Ind.—Contracts for improvements to water works system to cost \$57,605 have been approved by City Council, and work will be started immediately. System is being rebuilt at approximate outlay of \$200,000. Contracts were awarded Allis-Chalmers Co., of Milwaukee, Wis., pumps, \$32,150; S. Freeman & Sons' Manufacturing Co., of Racine, Wis., two boilers and three stokers, \$10,975, and the Wiederholdt Construction Co., of St. Louis, 185 ft. smokestack, \$4,480. Plans for all improvements were made by Burns & McDonnell, of Kansas City, Mo., while Freyer-muth & Maurer have designed new pumping station at Leeper Park.

Kimballton, Ia.—For constructing water works, to Forsbeck & Jackson, of Waterloo, Ia.

Webster City, Ia.—Lowest bidders on proposed big \$80,000 dam projected by city of Fort Dodge are firm of Sullivan & Zitterell of this city. Matter of construction of this immense municipal project will be submitted to voters of Fort Dodge, at which time proposition to levy \$80,000 in bonds will be voted upon.

Independence, Kans.—To Concrete Construction & Engineering Co., Iola, for construction of settling basin No. 1, water works extension.

Morenci, Mich.—By Village Clk., for constructing water works to G. W. Gust, of Morenci, for \$4,945.

Duluth, Minn.—Board of water and light commissioners has let contracts for fourteen extensions of water and gas mains, and approved petitions for four other extensions. Following contracts were let, extensions unless otherwise specified being 6-in. water and 4-in. gas mains: Minnesota av., north from Twelfth st., 240 ft., Simon Johnson, \$230.40; Victoria st., Eileen to Melrose, 360 ft., Simon Johnson, \$270; Twenty-seventh ave. east, Fifth to Seventh st., 768 ft., Simon Johnson, \$491.11; Thirtieth ave. east, Fifth to Sixth st., 50 ft. gas and water, 372 ft. gas only, Pastoret & Lawrence Co., \$216.20; East Tenth st., west from Eleventh ave. east, 192 ft., Erick Norquist & Co., \$131.50; East Tenth st., Fourth to Fifth ave., 480 ft., Erick Norquist & Co., \$331.20; Twelfth ave. east, Fourth from Eleventh st. to alley, 180 ft., Erick Norquist & Co., \$124.20; Fifth ave. east, Seventh st. south to alley, 168 ft., Erick Norquist & Co., \$112.70; Mygatt st., north from Princeton ave., 588 ft., Simon Johnson, \$990; East First st., from east of Twenty-eighth ave. to east of Twenty-ninth ave., 468 ft., Pastoret & Lawrence Co., \$252.36; West Fourth st., from Forty-third ave., 240 ft., Charles Eklund, \$192; Tioga st., Forty-seventh to Fiftieth ave. east, 1,332 ft., Simon Johnson, \$1,022.76; East Eleventh st., Twelfth ave. to east of Thirteenth, 804 ft., Erick Norquist & Co., \$913.25; East Eighth st., from west of Eleventh ave. to east of Eleventh ave., 336 ft., Erick Norquist & Co., \$219.95. Petitions approved by board call for following extensions: West Fourth st. from Forty-third ave. west, estimated cost, \$310.25; Forty-second ave. east from Superior st., estimated cost, \$680; Faribault ave. east of point east of Elysian, estimated cost, \$346.34; East Seventh st. west of Thirtieth ave., estimated cost, \$285.35.

Duluth, Minn.—By Board of Water and Light Commissioners for sinking of three wells to supply independent water system at New Duluth to Griffith & Walker for two at contract prices of \$1,413.50 and \$1,287.50, and the other to J. F. McCarthy at contract price of \$1,800.

Kerkoven, Minn.—By Village Council, to Des Moines Bridge & Iron Co., Des Moines, Ia., at \$11,298, for construction of waterworks system.

Carthage, N. C.—By Town, for constructing water works and sewers to Newport Contr. & Eng. Co., of Newport News, Va., for \$31,224.

Smithfield, N. C.—For constructing water works, sewer system and electric light plant from plans of Gilbert C. White, of Charlotte as follows: Boilers to R. D. Cole Mfg. Co., Newman, Ga.; cast-iron pipe, Glamorgan Pipe & Foundry Co., Lynchburg, Va.; hydrants and valves to Columbian Iron Works, Chattanooga, Tenn., and tower and tank, James S. Schofield Sons Company, Macon, Ga.

Fargo, N. D.—To C. H. Porritt, for construction of water main on First ave., north from Fifteenth st. north to Milwaukee right of way. His bid was \$1.39 per lineal foot, and hydrants at \$70 each. Haggart Construction Co. was only other bidder, bid being \$1.40 per lineal foot, with hydrants at \$75 each.

Homestead, Pa.—Borough of Homestead has awarded contracts for its proposed high service pump house and automatic electric pump, in accordance with plans drawn by Chester & Fleming, consulting engineers of this city. The Homestead Gas & Electric Supply Co. captured work of fitting out pump house, while George M. Hall Co., also of Homestead, was awarded contract for erection of house. Bids were as follows: For pump house and piping—Homestead Lumber Co., Homestead, \$772.81; Wm. Chisholm & Son Co., Pittsburgh, \$1,025.00; George M. Hall Co., Homestead, \$1,000.00; Homestead Iron Works Co., Homestead, \$1,115.00. For one half million gallon centrifugal pump and motor, erected—Harris Pump & Supply Co., Pittsburgh, \$650.00; Reineke-Wagner Pump Co., Pittsburgh, \$930.00; Lea Equipment Co., Pittsburgh, \$1,213.00; Homestead Gas & Electric Supply Co., Homestead, \$595.00.

Phoenixville, Pa.—By Borough Council, for erection of filtration plant, to Pitt Construction Co. of Pittsburgh.

Columbia, S. C.—By Superintendent of Water Works, for constructing coagulating basin at water works, to Geo. W. Waring, of Columbia, for \$26,963. Other bidders: Central Constr. Co., Lexington, Ky., \$29,405; Weston & Brooker, Columbia, \$35,206, and W. R. Harbeck, St. Charles, S. C., \$38,880.

Dallas, Tex.—To Southern States Steel Co., of Dallas, for furnishing steel to be used in foundation of the Oak Cliff pumping station. The amount of bid was \$1,493.85.

West Point, Va.—To Sydnor Pump Co., of Richmond, for installing 10,000 gallon water tower for supplying Euclid Heights with water.

Wauwatosa, Wis.—To O'Donnell Bros., Milwaukee, at \$6,156.79, for installation of water and sewer system for Agricultural School at Wauwatosa.

LIGHTING AND POWER

Greenville, Ala.—City Council will have at early date number of additional street lights installed in several parts of city where needed.

Sacramento, Cal.—City of Sacramento will join in work of establishing complete electroliner lighting system.

Grand Junction, Colo.—City Commissioners have passed resolution which will leave to decision of voters plan of city officials to negotiate with Penrose-McNeil, Colorado Springs capitalists, for purchase of Grand Junction electric light plant.

Wilmington, Del.—Better lighting of Linden and Jackson sts. is being considered.

Eatonville, Ga.—Upon report of Council Committee appointed to look into advisability and practicability of Eatonville establishing and owning her own plant Mayor and City Council has let contracts to Solomon & Norcross, of Atlanta, to begin work immediately on engineering work preliminary to establishing of city's electric plant. Bond issue will be called at once.

Milltown, Ga.—Milltown has voted bonds to put in electric lights and waterworks as follows: \$10,000 for water works and \$5,000 for electric lights.

Rhodes, Idaho.—Installation of electric light system is said to be under consideration.

Eldora, Ia.—Installation of modern lighting system will be installed.

Goldfield, Ia.—Citizens' Light, Heat & Power Co., Eagle Grove, has applied for franchise to supply electricity for lamps and motors.

Hastings, Ia.—Special election will be held for voting on granting electric light franchise to Central Station Engineering Co.

Lehigh, Ia.—Bond issue of \$20,000 has been voted for electric light plant and water works.

Frankfort, Ind.—Building of electric power house at Adams mill dam, one mile east of Cutler, Carroll county, and organization of company to supply electric light and power to Sedalia, Cutler and Rossville, and to farmers living along route, is project about to be launched. Petition has been filed with County Board of Commissioners, asking that it grant company use of highways for poles.

Lafayette, La.—City Council is considering petition of citizens for special election to vote on question of 2-mill tax for ten years for improvement of electric lights and water works plans and ordinance was duly adopted calling election on question for Sept. 19.

Hills, Minn.—It is said that movement is on foot to install electric light system.

Luverne, Minn.—City has voted \$10,000 bond issue for improvement of electric light plant.

St. Paul, Minn.—The advisory board of local division of Association of Commerce has been planning to have "way of light" extended on Fourth st. from Wabasha to Seven Corners, on Seventh from Wabasha to Seven Corners, and on St. Peter from Seventh to College ave.

Newburgh, N. Y.—Appropriation of \$600 for ornamental lighting of Second st. from Front to Grand st. will be asked for at next meeting of City Council by Street Committee.

Charleston, S. C.—Bond issue is being discussed for installation of new municipal electric lighting and water plants.

Arlington, S. D.—People will vote Aug. 17 on \$10,000 bond issue for construction of electric light and power plant.

Johnson City, Tenn.—Franchise has been granted Brook-Sewell Company to establish gas plant.

Dallas, Tex.—City Engineer Leon Taylor has completed plans and specifications for illuminating of Main and Commerce sts., from Houston st. to Houston and Texas Central Railroad. Total of 321 ornamental lights, same as those already placed on Elm st., will be placed on each of other streets at intervals of 60 to 70 feet.

Floresville, Tex.—At regular meeting of City Council, C. F. Spencer and associates of San Antonio, who have been

granted franchise to put in electric light plant submitted to Council proposition to furnish power for city water works plant.

Murray, Utah.—Election at Murray to authorize \$60,000 in alternative ten and twenty-year bonds to establish municipal light and power plant, resulted in vote to 256 to 137 in favor of bonds.

Alderton, Wash.—Installation of electric lighting system is being considered.

Janesville, Wis.—City Council passed resolution that electric lights be placed in Riverview Park, at intersections of North Main st. and Pease Court, Main and Wall sts., and on South Bluff st., between Oakland ave. and Racine st.

CONTRACTS AWARDED.

Haleyville, Ala.—Town Commissioners have signed contract with J. B. McCrary Company at Atlanta to begin work at once on water works and electric lighting system.

Lynn, Mass.—The five-year contract for street lighting with Lynn Gas & Electric Co. has been unanimously declared by Municipal Council to be satisfactory to city of Lynn.

Rochester, N. Y.—By Board of Contract and Supply for installing lighting system in art building at Exposition Park to Wheeler-Green Electric Company for \$728.70.

Dickinson, N. D.—By City Council, to Grambs & Peet, for installing "White Way" system in Dickinson for \$8,667.

Columbus, O.—By Dir. Public Service for constructing substation for municipal electric light plant and water works on E. Chittenden ave., to Adam Pitts, 2327 N. High st., for \$7,476. F. Bissel Co., of Cincinnati, secured contract for poles for overhead work in installing arc lights in outlying districts at \$6,235, and Western Electric Co. to furnish wire to connect new substation with municipal power plant for \$2,486.

Springfield, O.—Board of Park Commissioners for installing 120 cast iron lampposts in Snyder Park, with necessary conduits, and all equipment for lighting, to Sackett Mine Supply Co., whose bid upon work completed was \$6,849.

FIRE EQUIPMENT

Berkeley, Cal.—Purchase of more fire engines and establishment of new fire stations have been recommended.

Eureka, Cal.—Purchase of 3,000 ft. of 2½-in. hose, 300 ft. of 1½-in. and 40-ft. extension ladder is recommended.

San Jose, Cal.—Bids will be re-advertised for two automobile fire engines.

Milford, Conn.—Purchase of hose wagon is being considered.

Waterbury, Conn.—Plans are being considered for erection of fire station to cost \$100,000.

Newark, Del.—Aetna Fire Company has practically decided to invest \$4,000 obtained from its recent carnivals in automobile fire fighter.

Macon, Ga.—Equipping of South Macon fire house with auto apparatus is being considered.

Waycross, Ga.—Resolution has been passed providing for election for voting on bond issue of \$11,000 for improvements to fire department. H. D. Reed, Mayor.

Highland Park, Ill.—Purchase of additional motor engine and ladder truck has been recommended.

Shreveport, La.—Underground fire alarm system will be installed in business section of city; estimated cost, \$5,000.

Lutherville, Md.—Purchase of motor fire truck is under consideration.

Leicester, Mass.—Purchase of motor combination truck is recommended.

Spencer, Mass.—Appropriation is being considered for purchase of motor combination hose and chemical car.

Winona, Minn.—Purchase of motor combination chemical and hose wagon has been authorized.

Springfield, Mo.—It has been decided to purchase the following apparatus: two motor chemical trucks, one motor hose wagon, one motor pumping engine, auto for chief and 7,000 ft. of hose.

Butte, Mont.—Fire and Water Committee of City Council will recommend acceptance of bid of Seagrave Company, of Columbus, O., for furnishing city with alto propelled combination hose and chemical wagon and "flying squadron."

Omaha, Neb.—Purchase of two autos for assistant fire chiefs, and new motor trucks will be recommended.

Newark, N. J.—Fire Board will receive bids on Aug. 20 for motor-driven truck and high pressure service wagon.

Jersey City, N. J.—Request for emergency appropriation of \$6,000 has been made by Board of Fire Commissioners at meeting of Board of Finance.

Trenton, N. J.—Bids will be received by H. E. Evans, City Treasurer, until 2 o'clock p. m., Aug. 12, 1912, for purchase of the whole of \$32,000 and \$30,000 Fire Department bonds of City of Trenton.

Cohoes, N. Y.—Installation of new motor apparatus and fire alarm system is being planned.

Pine Bush, N. Y.—Meeting of taxpayers of Pine Bush fire district is called to consider advisability of purchasing chemical truck for fire protection.

Utica, N. Y.—Common Council has determined to purchase automobile for fire chief and combination hose and chemical cart for No. 1 company.

Raleigh, N. C.—Three motor combination chemical and hose wagons will probably be purchased, also auto for fire chief.

Niles, O.—Plans and specifications prepared by Architect A. E. Hackett for new fire department building have been approved and accepted by Board of Control.

Norristown, Pa.—Montgomery Hose Company has decided to dispense with horses and purchase automobile truck.

Uniontown, Pa.—Purchase of motor fire truck is being considered by City Council.

Woonsocket, R. I.—Question of additional fire apparatus is being discussed.

Austin, Tex.—Fire station bonds in sum of \$125,000 will be sold at once.

Brunner, Tex.—Purchase of modern equipment is being discussed.

Waco, Tex.—City Commission has accepted plans for fire station in North Waco and bids for its construction will be asked for shortly. Building will not cost more than \$6,000.

Newport News, Va.—City Council is considering purchase of motor-driven fire apparatus.

Spokane, Wash.—Two new fire stations, one in Altamont, and one on north hill at Wabash ave. and Jefferson st., will be provided for in Commissioner Hayden's budget estimates for 1913.

Spokane, Wash.—Manito fire station, No. 11, Twenty-seventh ave. and Grand boulevard, will be equipped with better apparatus.

Oshkosh, Wis.—City will purchase two motor hose wagons, and auto for Fire Chief.

Monroe, Wis.—Purchase of chemical apparatus is under consideration.

CONTRACTS AWARDED.

Lynn, Mass.—Following orders have been given by city: Knox two-tank combination hose and chemical, \$6,000, with five per cent. discount; Knox police patrol, \$3,922, with five per cent. discount; Pope-Hartford chemical, \$5,800, with five per cent. discount; Seagraves combination hose and chemical, \$5,775; Webb pumping engine, \$8,400.

Paterson, N. J.—By fire department for motorizing of No. 7 company's wagon to Leonard J. Tynan at \$3,400.

BRIDGES

Tombstone, Ariz.—Bridge on public highway at Hereford is now out of commission and steps will be taken for removal of that bridge and the erection of another one, probably at Charleston.

Marysville, Cal.—Board of Supervisors has decided to advertise for bids for construction of bridge at Parks Bar. Two kinds of bridges will be considered, concrete and steel.

Denver, Col.—Plans for alterations and improvements along Cherry Creek waterway, to prevent recurrence of recent flood damages, have been approved. City Engineer Fellows said board had already decided to build no more wooden or pile-support bridges across creek. He said channel of Cherry Creek is to be widened 20 ft., making total width 100 ft., from Blake st. to mouth of creek. He has also announced that Larimer and Market st. bridges are to be replaced with higher bridges.

Wilmington, Del.—County Engineer James Wilson has been directed by Levy Court to prepare plans for improvement of bridge at Rising Sun.

Peoria, Ill.—Bids received for construction of bridge over Mackinaw river at Bolliger's ford have been rejected and new bids will be called for.

Des Moines, Ia.—Plans have been completed in City Engineer's office for Seventh st. bridge.

Hagerstown, Md.—At meeting of Board of County Commissioners it was decided to get estimates on construction of bridge at Marsh Run near junction of

Prospect st. and Williamsport pike. It is planned to build concrete bridge, city paying half and county half.

Monticello, Miss.—Board of Supervisors of Lawrence county has sold \$25,000 bridge bonds to J. C. Byrne, ex-sheriff of county.

Winston-Salem, N. C.—County Commissioners are considering construction of steel bridge across Gadsden river near Clemmons, linking Forsyth and Davis counties; estimated cost, \$15,000.

Belleville, N. J.—Bids are advertised for construction of steel bridge over Passaic river; estimated cost, \$60,000.

Harriettstown, N. Y.—Town will vote on \$10,000 bond issue for erection of concrete bridge, across Saranac River. C. H. Goldsmith, Town Clk.

Lockport, N. Y.—State Canal Board has approved plans of State Engineer Benschel to extend Main st. bridge in this city at cost of \$75,000.

Lowville, N. Y.—Petition is being circulated among taxpayers of Lowville by A. A. Virkler asking that proper authorities take some action in regard to rebuilding or replacing of bridge spanning Mill Creek on State st. It is desired to have work done before bituminous pavement is laid.

New Hartford, N. Y.—Erection of concrete bridge to replace present bridge over Sanquoit creek at Genesee st. is being considered.

Rochester, N. Y.—Construction of bridge across river at Charlotte is being considered by Board of Supervisors.

Winston-Salem, N. C.—Salem Board of Commissioners has approved plans for 20-ft. steel bridge over Southbound extension on Bank st.

Toledo, O.—In order that it may be possible to resume traffic over Sumner st. bridge as soon as possible, Director of Service Cowell will present communication to Council asking that appropriation be made to cover cost of new bridge. It is believed that structure will cost approximately \$30,000.

Toledo, O.—City Engineer Tonson has estimated cost of new Consant Ash st. bridge will be \$320,000.

Johnstown, Pa.—Bids will be received at the office of the City Treasurer until 12 o'clock noon, Sept. 2, 1912, for purchase of \$50,000 Haynes St. Bridge bonds.

Philadelphia, Pa.—Within a few days Survey Bureau will ask for bids on two additional bridges. Most expensive is to be concrete arch structure over North Penn Railroad at Oak lane, on line of Sixty-sixth ave., north. This will cost \$25,000. Other is steel foot bridge on line of Blabon st., over Richmond branch of Reading Railway, at cost of \$5,000.

Philadelphia, Pa.—Following bids have been received for construction of bridges: For reinforced concrete bridge at Seventy-second st., over tracks of Philadelphia, Baltimore and Washington Railroad, American Paving and Construction Co., \$35,700, nine months to complete; McNichol Paving and Construction Co., four months, \$39,850; Richard Walsh, nine months, \$38,270; Kelly & Heyburn, nine months, \$38,900; Daniel F. Bader, eight months, \$43,900, and Robert Higgins, ten months, \$39,888. For reinforced concrete bridge on line of Sixty-fifth st., over Philadelphia, Baltimore and Washington Railroad, bids were: Richard Walsh, nine months, \$35,333; McNichol Co., four months, \$38,913; American Co., one year, \$35,700; Kelly & Heyburn, ten months, \$39,400; Robert Higgins, ten months, \$39,500, and Daniel S. Bader, eight months, \$49,000. Each of the new bridges is in Fortieth Ward. For reconstruction of Glenwood av. bridge, over Reading Railway's Norristown branch, bids were: M. & J. B. McHugh, six months, \$14,333; Daniel S. Bader, six months, \$16,667; Richard Walsh, five months, \$17,831, and American Co., eight months, \$19,000. Bids for steel foot bridge on line of Montgomery st., over North Penn Railroad and American sts., M. & J. B. McHugh, six months, for \$12,922; Richard Walsh, six months, \$15,658; American Co., eight months, \$13,900, and Daniel S. Bader, six months, \$18,128.

South Bethlehem, Pa.—By Council for 1,200 feet of fire hose to Eureka Company, 500 feet; H. W. Johns Manville Company, 500 feet; Quaker City Rubber Company, 200 feet.

Dallas, Tex.—Plans are now being prepared by County Engineer J. F. Witt for new 60-ft. concrete arch bridge over White Rock Creek, on Richardson road, and for bridge with two 50-ft. concrete arches over Prairie Creek, on Seagoville road. Concrete girder 23 ft. in length is also to be erected on Miller's Ferry road, between Hutchins and Wilmer.

Mr. Witt said that total length of Seagoville road arch bridge will be about

120 ft. It will cost about \$5,000. White Rock Creek bridge is to cost about \$3,500.

Chattanooga, Tenn.—Resolution has been adopted appropriating \$4,500 for erection of concrete bridge across Citico creek near city water plant to provide short cut to East Chattanooga.

Memphis, Tenn.—Construction of bridge over Mississippi River at Memphis by Rock Island Railroad Co. has been authorized. Citizens of Crittenden County have agreed with Memphis citizens to devote portion of cost of approaches to structure; estimated cost \$4,000,000.

Park City, Tenn.—Construction of modern concrete viaduct spanning First Creek on Knoxville-Park City line on East Park ave. is being discussed.

Pulaski, Va.—Election held in this County upon question of Dublin district issuing \$100,000 of bonds for purpose of improving bridges and roads, resulted in favor of bond issue.

West Point, Va.—Construction of bridge across Mattaponi River, at West Point, is being considered.

Tacoma, Wash.—County Commissioners have decided to begin negotiations with King County regarding erection of permanent bridge over White River. This bridge will have steel span at least 250 ft. long, and cost, including approaches, will exceed \$40,000.

Milwaukee, Wis.—Repairs to Holton st. bridge to cost \$20,000 are said to be under consideration.

Milwaukee, Wis.—Construction of new bridge over Milwaukee River on Port Washington road is being considered.

CONTRACT AWARDED.

Montrose, Colo.—By City Commissioners to Pueblo Bridge Co. for two new bridges across Uncompahgre River. The one is to replace bridge washed out near Olathe and other near Uncompahgre. Contract price for Olathe bridge is \$3,700 and that at Uncompahgre \$2,950.

Milford, Conn.—For building of cement bridge over creek on Rogers ave. to Contractor C. V. Sewell, of Laurel Beach.

Galesburg, Ill.—For constructing bridge across Spoon River in Maquon township by Road and Bridge Com. of the Board of Supervisors, to Clinton Bridge & Iron Works, for \$13,800.

Winchester, Ind.—By County Commissioners, construction of seven new bridges in county to Stace Catey. Contract for one bridge was awarded to Irvin Jackson and another to Grant Forrest.

Greensboro, N. C.—By Guilford County Commissioners to Owego Bridge Co., Owego, N. Y., at \$5,000 to construct proposed reinforced concrete bridge across N. Buffalo Creek, on N. Elm st.

Cohoes, N. Y.—For constructing bridge across Erie Canal, at Vliet st., Cohoes, by State Superintendent Public Works, at Albany, to Aldredge Hall Co., Inc., of Schenectady, for \$5,500.

New York, N. Y.—For furnishing and delivering structural steel to Williamsburg Bridge, to McClintic-Marshall Constr. Co., 13 Park Row, for \$42,800. The Cooper & Evans Co. bid for the work \$49,906.

Akron, O.—For construction of Kelly ave. bridge, in East Akron, to George Crisp & Son, by Board of Control at their bid of \$29,250. Council some time ago passed ordinance to issue bonds in sum of \$29,000 for this purpose.

Cuyahoga Falls, O.—New bridge to be erected over river from Chestnut St. to Front St., is being considered.

Dayton, O.—For construction of bridge No. 18 in German township to Contractors Frank Gitzinger and E. V. Sears by County Commissioners. Combined bid on bridge was \$512.

Toledo, O.—By County Commissioners for repair of thirteen bridges to R. W. Johnson and two bridges to W. J. Demuth, of Whitehouse. Bridges to be repaired by Johnson and bid submitted by him were as follows: Three bridges in Jerusalem stone road over Cedar Creek in Jerusalem Township for \$706.96, \$424.88 and \$448.75; bridge half mile west of Bono over Ward's canal in Jerusalem Township, \$340; bridge one mile north of Bono over a dredged ditch in Jerusalem Township, \$261.12; bridge over Ten Mile Creek on Bancroft st. at Ottawa Park in Washington Township, \$433.52; bridge over the creek on the Point Place road at Gurtz's place in Washington Township, \$592.68; bridge over Ten Mile Creek on Central ave., near the Albion farm in Sylvania Township, \$735.20; bridge over creek one mile south and one mile and a half west of Neapolis in Providence Township, \$302.19; bridge over Canal Side Cut, 30 rods south of the paper mill in Maumee, \$344.31; bridge over Swan Creek at the

north end of Salsbury stone road north-west of Maumee in Monclova Township, \$844.38; bridge over Dry Creek three-quarters of a mile southeast of Monclova in Monclova Township, \$327.68; bridge over Swan Creek at the north end of the Conant st. road north of Maumee in Springfield Township, \$437.20. Two bridges awarded Contractor Demuth were in Springfield Township, one mile south and the other one mile and half south of Holland at a cost respectively of \$271.26 and \$586. Bridges are to be refloored with creosote wood block.

Brownsville, Pa.—To Capitol Constr. Co., of Columbus, O., to construct the county bridge at \$31,091.

Croydon, Pa.—For repairing the Croydon bridge, by County Commissioners of Bucks to Carl R. Camp for \$5,958.

York, Pa.—County Commissioners have decided to notify Road Supervisors of Dover and West Manchester Townships that if they do not have approaches built to stone-arch bridge, 50 ft. long, which was erected across Big Conewago Creek between two townships last year, work would be done by county at expense of districts.

Providence, R. I.—To J. Hynes & Son, of Wales, Mass., to construct 11 State bridges at total cost of \$14,050.

Brownsville, Tex.—For construction of bridge across arroyo by County Commissioners to F. H. Alsbury & Co., of Houston, at \$4,650.

Spanish Fork, Utah.—In near future Leland is to have reinforced concrete bridge across Spanish Fork river. Bridge is to be 40-ft. span with a 16-ft. roadway, and will be largest concrete bridge in this locality. Contract has been awarded to Fernstein & Wilcox of this city.

Wheeling, W. Va.—By County Commissioners for repairing and rebuilding several of county bridges as follows:—John Boyd received contract for rebuilding Bridges Nos. 1 and 2, being located along the Greggsville, Clinton and Potomac pike. F. C. Nelson, of Elm Grove, was given contract for placing concrete floors in Bridges Nos. 3, 4, 5 and 6, on Peters and Brown's run roads.

Springfield, Wis.—By Town Board for following bridges to be built this fall: A 30-ft. steel bridge with concrete zoor, across Bean Brook. One concrete culvert 40 ft. long across Hay Creek. One concrete culvert 40 ft. long across Gull Creek. There were five bidders for steel bridge; all bids ranged about same. Lowest bid was by H. Burnett & Co., of Spooner. Contract was awarded to him for \$996. There were only two bidders on culverts, one bid of \$996, the other of \$570. Contract was let to E. G. Cassidy, of Spooner, for two culverts for \$570.

MISCELLANEOUS

Birmingham, Ala.—Bond issue of \$1,000,000 for new courthouse and jail is being considered.

Los Angeles, Cal.—Garbage incinerator has been recommended to Board of Public Works.

Los Angeles, Cal.—Two notable recommendations are contained in Mayor Alexander's annual message. These are establishment of municipally owned and operated public market, and establishment of free public baths.

Los Angeles, Cal.—Budget Committee of Council has announced that it will recommend appropriation of \$10,000 for city lodging house.

Martinez, Cal.—Board of City Trustees have opened bids for construction of Martinez municipal wharves, for which this city recently voted bonds. It is stated that contract will be awarded to Mervy-Elwell Co. of San Francisco, their bid of \$31,340 being lowest. There were ten bidders, highest bid amounting to \$38,000.

Oakland, Cal.—Council has passed resolution calling for plans for 24-ft. wide wharf, extending from present terminal of Fourteenth st. to new bulkhead line, distance of 4,022 ft., estimated cost \$28,000.

Passadena, Cal.—Establishment of municipally owned and operated public market is being discussed.

Sacramento, Cal.—State Treasurer Roberts has been unofficially advised of resolutions adopted by State Board of Harbor Commissioners at San Francisco ordering sale of \$2,000,000 block of \$9,000,000 issue of harbor improvement bonds authorized by people in 1910. Sale will be held some time in September.

Sacramento, Cal.—People have authorized \$887,000 bond issue to insure city from all danger from flood water. They have approved of plans prepared by City Engineer George N. Randle.

San Francisco, Cal.—Harbor Board has received communication from State Treasurer E. D. Roberts informing board that he will offer for sale, August 26, \$2,000,000 worth of second San Francisco seawall bonds.

Bridgeport, Conn.—Mayor Wilson recommends special election on September 24 that referendum vote may be taken by people on desirability of seeking authority from legislature for issuance of \$2,155,000 worth of bonds for following purposes: \$1,200,000 for rapid development of city sewer system, \$300,000 to be spent each year, \$130,000 for new East Washington ave. bridge, \$175,000 for new almshouse, \$400,000 for new Stratford ave. bridge, \$250,000 for the extension of Seaside Park and development of Fayerweather Island.

Tampa, Fla.—Bond election will be held August 20, when this city will vote on question of bonding itself for \$1,700,000 for city improvements.

Waycross, Ga.—Resolution has been passed providing for election for voting on bond issue of \$4,000 for building and installing crematory. H. D. Reed, Mayor.

Indianapolis, Ind.—Board of Public Works has asked City Controller Wallace to recommend to City Council appropriation of \$225,000 to special fund for construction of buildings at City Hospital. Action on bids for construction of two ward units at the hospital may shortly be taken by board. It is possible bids, which are above architect's estimate, may be rejected, and plans modified with view to reducing cost.

Eminence, Ky.—City Council is considering plans for erection of new City Hall and engine house.

Shreveport, La.—At special meeting City Council authorized Mayor and Superintendent of Finance and Accounts to borrow \$14,000 for making permanent improvements at State Fair Grounds.

Lowell, Mass.—Municipal Council has voted to borrow \$22,000 for comfort station.

Monticello, Miss.—Board of Supervisors of Lawrence county has sold \$50,000 courthouse bonds to Z. D. Davis, president Capital National Bank, Jackson.

Hamilton, Mont.—City Council has voted to call special election for Aug. 26, when people will say whether or not they are in favor of city's issuing bonds in sum of \$10,000.

Atlantic City, N. J.—City Commissioners and committee from Board of Freeholders are discussing matter of building of new \$100,000 almshouse jointly between city and county.

Newark, N. J.—Issue of bonds with which to erect proposed new Center Market is being urged by members of public market committee of Common Council.

Newark, N. J.—Lowest bid received for construction of proposed Board of Health and City Dispensary building at Plane, William and Arlington sts. was that of E. M. Waldron & Co., at \$85,028.

Trenton, N. J.—Mayor Donnelly is advocating a bond issue for playgrounds.

Trenton, N. J.—Plans have been adopted for erection of new jail, for which \$150,000 worth of bonds will be issued.

Albany, N. Y.—Bids have been received by Duncan W. Peck, State Superintendent of Public Works, for construction of section of barge canal through Onondaga Lake outlet. Only one Syracuse contractor submitted bid. He was John Young, who made second lowest proposal for work at Three Rivers. His estimate was \$43,049, as against bottom price of \$40,639 sent in by Barrely & Ingersoll, of Rochester. On contract for constructing outlet section. James Stewart & Co., of New York, and New York State Dredging Corporation, of Rochester, submitted figures. New York firm bid \$94,092, while Rochester corporation's estimate was \$93,596.

Brooklyn, N. Y.—Bids will shortly be asked for extension of Fourth Ave. Subway from Fortieth st. to Eighty-sixth st.

Utica, N. Y.—Common Council has determined to purchase combination patrol wagon and ambulance for Police Department.

Winston-Salem, N. C.—Bonds amounting to \$400,000 have been sold to syndicate composed of Wachovia Bank & Trust Co. of this city, a banking firm of Spartanburg, S. C., and A. B. Leach and Company of New York City.

Bismarck, N. D.—Chas. Skooglum, St. Paul, was low bidder for municipal auditorium at \$95,975.

Bismarck, N. D.—Special election will be held Aug. 19 for purpose of voting on \$40,000 bond issue for construction of municipal auditorium.

Cincinnati, O.—Seven issues of city bonds aggregating \$438,500 have been awarded by City Auditor Washburn to Breed & Harrison, and Fred, Longstreth & Co., Cincinnati.

Norwalk, O.—County Commissioners of Huron County will issue bonds in sum of \$50,000 to be used in reconstruction of court house.

Springfield, O.—Bond issue of \$3,000 is being considered for purchase of auto patrol wagon.

Toledo, O.—Park Commissioners have introduced ordinance in City Council providing for \$750,000 bond issue for purpose of purchasing and condemning land for parks, park entrances, parkways and completion of boulevard system.

Toledo, O.—Purchase of two 5-ton motor trucks to transport garbage from collecting stations to reduction plant has been authorized.

Altoona, Pa.—Bond issue of \$150,000 will be sold on August 15.

Harrisburg, Pa.—City Improvement bonds amounting to \$154,000 have been awarded by Sinking Fund Commission on joint bid of Harrisburg Trust Company, First National Bank and Merchants' National Bank.

Pittsburgh, Pa.—In report to Pittsburgh Council Civic Club of Allegheny County has recommended establishment of 11 new public comfort stations. It is proposed to authorize voting on bond issue of \$100,000 to cover cost.

Reading, Pa.—Mr. Emil L. Nuebling, Supt. and Engineer of Water Department, wants information regarding rustic waste receptacles made of cast iron.

Central Falls, R. I.—Plans prepared by Architect W. Howard Walker for new courthouse and police station are being considered.

Greenville, S. C.—City Council has decided to buy auto patrol wagon for police department. Motor vehicle will cost about \$2,500, and will be of most modern approved type for police use.

Austin, Tex.—City Hall bonds in sum of \$475,000 will be sold at once.

Sherman, Tex.—Bond election for \$198,000 was carried July 25. The sum of \$10,000 will be used in extending the water works system; \$100,000 will be used in paving the streets; \$13,000 for improving the fire department; \$75,000 for constructing and improving public school buildings.

Bristol, Tenn.—City will erect new jail to cost not less than \$30,000.

Nashville, Tenn.—Bill has been approved authorizing vote on issuance of \$200,000 bonds for remodeling city hall and market house.

Norfolk, Va.—Purchase of auto patrol is being discussed.

Petersburg, Va.—Finance Committee will present to Common Council and Board of Aldermen at their August meeting recommendation that \$200,000 bond issue be provided for.

Portsmouth, Va.—Police committee of City Council has decided to recommend to council purchase of police patrol wagon.

Suffolk, Va.—The \$40,000 bond issue of city of Suffolk has been awarded to Breed & Harrison of Cincinnati.

Centralia, Wash.—Election will be held in Kelso for purpose of voting \$14,000 bonds for erection of new City Hall.

CONTRACT AWARDED.

Wilmington, Del.—Directors of Street and Sewer Department have awarded contracts for department materials for ensuing year. Bids were received and tabulated. Charles Warner Company was awarded contract for furnishing both bar and river sand. Same company received contract for furnishing terra cotta pipe and Delaware Terra Cotta Co. will furnish brick. The cast-iron castings were awarded to Lobdell Car Wheel Co.

Tifton, Ga.—For erection of Tift County's new court house to Jenkins & Co., of Ocala, Fla. Court house is to be \$60,000 structure.

Brazil, Ind.—By Clay County Board of Commissioners and Building Committee for new court house, to Bailey & Koerner, of Louisville, Ky., for \$176,666.

Portland, Me.—For general construction of police station to F. W. Cunningham & Sons at \$47,624. Other bids as follows: Tyson, Weare & Marshall, \$50,722; John W. Burrows Co., \$47,665; Sawyer Construction Co., of Bangor, \$61,930; Blackstone & Smith, \$48,570; F. A. Rumery & Co., \$49,160; J. W. Gulliver, \$52,000.

Rockland, Me.—To Fales & Simmons for building retaining wall on Main st., northward from foot of Granite st., at \$8,837.50.

Boston, Mass.—By city for construction of City Hall Annex to Wells Bros. Co. at \$743,510. Seven bids in all were received, other six being as follows: George A. Fuller Company, \$747,105; Conners Bros., \$750,000; A. Varnerin Company, \$780,277; Norcross Bros., \$786,000; Hedden Construction Company, \$794,000; William H. Keyes Company, \$800,000.

Kalamazoo, Mich.—By City Council to R. A. Leroy for erection of police station and city jail.

Eveleth, Minn.—By city for supplying new sprinkler to Studebaker Bros. Company, of Minnesota at \$690, wagon complete.

Elizabeth, N. J.—For erecting auxiliary building at Bonnie Burn Sanatorium, by building committee of Board of Freeholders to P. B. Polhemus, of Roselle Park, for \$5,426, his proposal being lowest of four received.

Newburgh, N. Y.—By City Council for construction of public pier at foot of South st., to William Parrott, for sum of \$8,267.

Rochester, N. Y.—For equipment of playground at Exposition Park, including construction of merry-go-round, lowest bidder was Narragansett Machine Company, at \$716. Bids submitted by A. G. Spaulding & Brothers and by Scranton, Wetmore & Company were thrown out because they did not bid on all of articles in specifications.

Bryan, O.—Board of Trustees of Public Affairs to Kelly Construction Co., at

\$3,425 for construction of addition to municipal light and water plant.

Springfield, O.—By hospital board for erection of addition to City Hospital. The low bidders were: William Poole, concrete, cement and brick work and plastering, \$14,626; R. H. Desormaux, plumbing, gas fitting and heating, \$3,092.50; Hawkins Electric Co., electric wiring, \$597.86; Beacon & Garret, bathroom fixtures, \$340.

Youngstown, O.—For the pretentious addition to be made to City Hospital at Youngstown to Neidermeir & Restle, and annex, when completed, will represent outlay of \$140,000.

Chester, Pa.—Bids for alterations and additions to Delaware County Court House have been opened in office of County Commissioners, and contract is expected to be awarded in few days. Lowest bidder was J. E. and A. L. Pen-nock, of Philadelphia, who bid \$156,800 for limestone, and \$182,540 for marble, and agreed to complete work by Oct. 31, 1913. Bids were as follows: M. P. Wells, 619 Witherspoon Building, Philadelphia, limestone \$165,773, marble \$199,000; completion by Nov. 15, 1913. The Charles McCall Co., of Philadelphia, limestone \$179,823, marble \$215,272; completion in 350 working days. William H. Fissell & Co., New York, limestone \$187,500; no bid on marble; completion by Dec. 1, 1913. William E. Dotts & Co., Philadelphia, limestone \$179,774, marble \$207,000; completion by Nov. 1, 1913. Thomas Riler, Philadelphia, limestone \$156,975, marble \$193,701; comple-

tion by Dec. 1, 1913. P. J. Hurley, Philadelphia, limestone \$183,000, marble \$208,500; completion by Dec. 31, 1913. A. Bottom & Son, Philadelphia, limestone \$194,918, marble \$239,918; completion by Dec. 31, 1913. John W. Emery, Philadelphia, limestone \$190,862, marble \$213,862; completion by Nov. 1, 1913. Charles H. Peckworth, New York, limestone \$176,874, marble \$205,888. Norcross Bros., Worcester, Mass., limestone \$207,000, marble \$234,000; completion by Nov. 1, 1913. James Connor, Philadelphia, limestone \$186,783, marble \$203,280; 240 working days.

Burlington, Vt.—N. C. Florence has been awarded contracts for garbage collection for \$1,800.

Seattle, Wash.—Following contracts have been awarded by Board of Public Works: Thirteenth Avenue South et al., Sewers, Donofrio & Raimondo, \$35,169.50; Ninth Avenue South, grading, etc., Will Kopta, \$1,723.50; steel mooring buoy, Seattle Construction & Drydock Co., \$3,810; mushroom anchor, Union Machinery & Supply Co., \$650; float and gangplank, foot of Harrison street, L. R. Ellis, \$1,237; gangplank and float, foot of Pike street, L. R. Ellis, \$1,167; Fifteenth Avenue Northeast et al., sewers, Nicholo Florito, \$16,764.32; West 51st street et al., grading and curbing, J. H. Cullen & Co., \$22,967.75.

Wheeling, W. Va.—For erection of new building to occupy site of old City Hospital to James Stewart and Company of Pittsburgh, Pa.

TOO LATE FOR CLASSIFICATION

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREET IMPROVEMENTS				
Pennsylvania	Harrisburg	Aug. 17, noon	Grading and improving road	C. A. Disbrow, Pres. Pk. Com.
Pennsylvania	Houston	Aug. 19, 7.30 p.m.	Constrn. 7,400 yds. pavement	J. S. Gantz, Sec.
Missouri	Sedalia	Aug. 19, 5 p.m.	Constrn. 4,800 yds. bk., 1,000 yds. concrete	F. T. Leaming, City Engr.
New Jersey	Camden	Aug. 19	Paving several streets	J. C. Haines, Chairman
Ohio	Toledo	Aug. 21, noon	Improving Hawley street	F. G. Stockton, Sec.
Iowa	Des Moines	Aug. 21, 9 a.m.	Constrn. 2,800 yds. concrete pavement, &c.	J. R. Hanna, Mayor
Kansas	McPherson	Aug. 21	Constrn. 1,700 yds. brick	H. A. Rowland, City Engr.
Ohio	Akron	Aug. 23, noon	Paving and constructing sidewalk	R. M. Pillmore, Dir. Pub. Ser.
Pennsylvania	Suterville	Aug. 27, 7 p.m.	Constrn. slag pavements	D. Peters, Clerk
Alabama	Birmingham	Aug. 28	Constrn. model highway	County Commissioners
Pennsylvania	Harrisburg	Aug. 30	Constrn. 16 sections of highways	E. M. Bigelow, Comr.
Indiana	Crawfordsville	Sept. 3, 10 a.m.	Improving highway	B. V. Engle, County Aud.
SEWERAGE				
New Jersey	Irvington	Aug. 19, 8 p.m.	Constrn. sewer	L. J. Casey, Jr., Town Engr.
New York	Brooklyn	Aug. 20, 10.30 a.m.	Constrn. sewer line and tanks	E. J. Lederle, Pr. Bd. Health
New Jersey	South Amboy	Aug. 20, 8.30 p.m.	Constrn. 800 ft. 8-in. sewer	City Council
New York	Utica	Aug. 21	Constrn. 400 ft. 12-ft. concrete sewer	Bd. Contract and Supply
Louisiana	New Orleans	Sept. 19	Con. piping & auxiliaries for power house	F. S. Shields, Sec.
WATER SUPPLY				
Ohio	Lorain	Aug. 20	Furn. 13 tons lead pipe	Dir. Pub. Service
So. Carolina	Blackville	Aug. 20	Constrn. water works	City Council
New York	Brooklyn	Aug. 22, 2 p.m.	Constrn. alterations for pumping station	H. S. Thompson, Comr.
Minnesota	Cuyuna	Aug. 31	Constrn. water works	G. Anderson, Village Clerk
FIRE EQUIPMENT				
Pennsylvania	Lebanon	Aug. 31, 11 a.m.	Building fire engine house	D. M. Sharp, City Clerk
Dist. Col.	Washington	Sept. 9, 2 p.m.	Furn. motor pumping engine and hose wagon, also hook and ladder truck	T. H. Rudolph, Comr.
BRIDGES				
Iowa	Des Moines	Aug. 19, noon	Constrn. 4 concrete bridges	J. B. Uhl, Chairman
New York	Trenton	Aug. 31, 11 a.m.	Constrn. 2 concrete bridges	E. W. Griffith, Town Clerk
Ohio	Akron	Sept. 6	Rebuilding sub-structure	C. L. Bower, Clerk
MISCELLANEOUS				
New Jersey	Longport	Aug. 19, 8 p.m.	Constrn. jetties on beach front	W. S. Gilmore, Boro. Clerk
Pennsylvania	Harrisburg	Aug. 26, 2 p.m.	Constrn. 15,500 ft. reinforced concrete channel in creek	D. E. Tracy, Sec. B. P. W.
Ohio	Toledo	Aug. 27, noon	Constrn. reinforced concrete fence	F. G. Stockton, Sec.

STREET IMPROVEMENTS

Fairfield, Cal.—The Board of Supervisors has decided to build three new concrete bridges on county roads to replace same number of wooden structures which have become useless by reason of wear.

Willows, Cal.—County Engineer Stiles will shortly present to County Supervisors plans and specifications for \$100,000 worth of road work under \$450,000 road and bond issue.

He has previously submitted plans for work to cost \$50,000 which have been

accepted and will soon be in course of construction. Plans he will now turn in will complete road work for year.

Peoria, Ill.—Paving of Weirwood St. in two sections from Elizabeth St. to Elmwood Ave. is being considered.

Grand Rapids, Mich.—County board of good roads commissioners will meet and complete in this session arrangements for buying entire equipment necessary to carry on work of improving Kent county's roads under recent bond issue.

William T. Johnson, superintendent of job, will advocate purchase of four road graders, one for each section, 40

scrapers, dozen plows and other tools. Total cost will be in neighborhood of \$3,000.

Duluth, Minn.—Petition for paving of 27th Ave. West has been granted, and board will proceed with the paving at once; estimated cost, \$16,210.21.

St. Joseph, Mo.—Bond issue for good roads will shortly be voted on.

Hattiesburg, Miss.—Bond issue for new roads is being discussed.

Natchez, Miss.—Adams County Board of Supervisors have adopted order to issue good road bonds in amount of \$150,000.

Pascagoula, Miss.—Board of Supervisors, at the request of F. H. Lewis, R. A. Farnsworth and Charles E. Chidsey, road commissioners for District No. 3, has ordered \$25,000 bonds issued for roads of this district. Bonds will be sold Sept. 2.

Glenolden, Pa.—Citizens have approved of loan of \$30,000 for purpose of street improvements and for sewer system.

Morrisville, Pa.—Morrisville Council has decided to grade Harrison, Cleveland and Robertson avenues.

Knoxville, Tenn.—Plans and specification have been completed for street paving that will be done this year. At meeting of the commissioners of Knoxville, John W. Flenniken, commissioner of street and public improvements, will offer motion to advertise for paving of three improvement districts, Forest ave., from Fourth st. to Ninth st., alley between Highland ave. and Forest ave.; Henley st., from Main ave. to Cumberland ave.

Harlingen, Tex.—Cameron County Good Roads Association will present to County Court petition asking for bond issue of \$250,000 to improve roads of this county.

Freeling, Va.—Clintwood Magisterial District of Dickenson County will on August 19 vote on question of whether district shall issue thirty-year bonds to amount of \$50,000 for road improvements. Plan is to use \$30,000 to build leading road from mouth of Brush Creek by way of Clintwood to nearest point of Carolina, Clintfield and Ohio Railroad, now under construction down McClure Creek; balance of \$20,000 to be used for improvement of other public roads in district.

Contracts Awarded.

Wilmington, Del.—By Levy Court for building new piece of road from Ashland to Corklyn to B. F. Wickersham at his bid of \$24,639. The Commissioners decided to use local stone in construction of road.

Peoria, Ill.—By City Council for paving with brick 6 blocks on Columbia Ter., formerly known as Columbia Ave., to Canterbury Bros. for \$19,554.80. Other bids were received as follows: McElwee & Bushell, \$23,528; E. A. Meyers, \$22,134.80; A. B. Thompson, \$21,941.20. Council also awarded contract for paving of Stanley St., from Adams St. to Krause Ave., with brick, to Douglas A. Myers, for \$5,664.20. McElwee & Bushell bid \$6,191.70.

Paving contracts have been awarded as follows: Spring St., brick, to John McAllister; Bigelow St., asphalt, to J. H. Bushell & Co.

Rock Island, Ill.—By Board of Local Improvements for paving of 27th St., between 5th and 9th Aves., to the Independent Constr. Co., of Davenport, Ia., for \$13,962. The unit prices were \$1.25 per sq. yd. for brick paving on concrete foundation and 65 cts. per lin. ft. for curb and gutter. Tri-City Constr. Co. bid \$13,976.

Waukegan, Ill.—By Board of Local Improvements to Chas. Payne, of Waukegan, for construction of retaining walls on Belvidere St. for \$937.30; to the Boyce Constr. Co., of Chicago, a contract for paving Steele Court and Cory Ave. for \$12,764; a contract for paving Madison St., Fairview Pl., Clayton St. and Sherman Pl., for \$8,405, and a contract for paving Lawn Court for \$1,071.90.

Vincennes, Ind.—By County Commissioners for construction of gravel road to Lyman E. Cade at \$4,985.

Clinton, Ia.—By Council for paving of 2d Ave., between 3d and 4th Sts., and on 3d St., between 2d and 3d Aves., W. Thos. Carey & Son at \$4,002 and \$1,448, respectively.

Perry, Ia.—By City Council for paving Otley Ave., to W. G. Birdsell, of Perry.

Winchester, Ky.—By City Council for paving portion of Main St. with brick to Daniels, Lyst & Douglas, of Anderson, Ind., for \$35,555.

Cumberland, Md.—By State Road Commission for rebuilding of three miles of old Baltimore pike from terminus of state road recently completed at Flintstone east to former Mayor George A. Kean of Cumberland, contractor. Contract for two more sections of three miles each will shortly be awarded, making stretch of nine miles east of Flintstone.

Duluth, Minn.—By Board of Public Works for paving of Parkside Ave. from Superior St. to Vermillion Rd. to P. McDonnell. His bid was approximately \$28,000, about estimated cost.

Avenue will be improved with silica concrete pavement, mixture of sand, stone and concrete. August Bodin was successful bidder for concrete curb and gutter on West Fifth st., between Twenty-third and Twenty-fifth aves. Johnson & Erickson were low bidders on sanitary sewer in Victoria st., between Columbus ave. and the Hartley rd. Cost of each job is about \$1,500.

Troy, N. Y.—By Board of Estimate and Apportionment, for paving with granite block on concrete foundation Twenty-fifth st., between Third and Twelfth aves., to Dollard & Heeran, of Albany, for \$40,517.99. Board has also awarded contract for resurfacing with bitulithic pavement Seventh ave., between State and Grant sts., to the Warren Bros. Co., of Boston, Mass., for about \$9,000.

Monroe, N. Y.—By Town Board, for rebuilding of Quaker Hill rd. to Schunemunk Construction Co. for about \$1,550.

Utica, N. Y.—By Board of Contract and Supply, for paving portion of Schuyler st., 1,060 sq. yds., from Harry W. Roberts Co., of Utica, as follows: Bitulithic, \$2.20 per sq. yd.; asphaltic concrete, \$1.80; vitrified brick, \$2.25.

Columbus, O.—By State Highway Department, for grading and paving with bituminous treated waterbound macadam Sec. No. 2, the Leesville rd., State Highway "F" pet. No. 387 in Sandusky Township, length 10,800 ft., or 2.04 mile, to Carroll & Gruber, Caledonia, O., at \$13,283.40. For grading and paving with bituminated concrete Sec. No. 3, the Millersburg and Berlin rd., State Highway "B" pet. No. 481 in Hardy Township, length 1,795.5 ft., or 0.34 mile, to W. R. Kniseley, New Philadelphia, O., at \$5,750. J. R. Marker, Commissioner.

Columbus, O.—By State Highway Department, for grading and paving with brick for medium traffic Sec. No. 1, the Belmont National rd., State Highway "H" pet. No. 191 in Union Township, length 7,500 ft., or 1.42 mile, to Petrie & Turner, Logan, Utah, at \$17,600. For grading and paving with brick for medium traffic the Portsmouth and Columbus Ext. rd., State Highway "B" pet. No. 492 in Clay Township, length 5,350 ft., or 1.02 mile, to Henry H. Kaps, Portsmouth, O., at \$12,537, and for grading and paving with bituminated concrete Sec. No. 3, the Winchester rd., State Highway "D" pet. No. 213 in Madison Township, length 11,320 ft., or 2.14 miles, to Charles Bird, Springfield, O., at \$21,000. James R. Macker, State Highway Commissioner.

Sherman, Tex.—By Grayson County Commissioners' Court, for construction of little over 78 miles of road in Sherman precinct to the Larkin Construction Co., of Dallas for \$255,019.14.

Waco, Tex.—Contracts for street paving have been awarded at special meeting of City Commissioners, which include area of seven blocks. Estimate submitted by Austin Bros., of Dallas, for paving two alleys with Lolarway paving, it being of hard concrete type, was accepted.

Culpeper, Va.—By Board of Supervisors of Culpeper County and the Mayor and Town Council, to Culpeper Construction Co. for macadamizing 4.3 miles of street in the town for \$5,949.34.

Seattle, Wash.—By Board of Public Works, for paving of Harrison st., to P. J. McHugh at \$31,625.35.

Wheeling, W. Va.—By Board of County Commissioners of Ohio County, for rebuilding bridges Nos. 1 and 2 along Greggsville, Clinton and Potomac pike, to John Boyd, and contract for placing concrete floors in bridges Nos. 3, 4, 5 and 6, on Peters' and Brown's Run rd., to F. C. Nelson, of Elm Grove.

Fond du Lac, Wis.—For the construction of 20,000 sq. ft. of concrete sidewalk in village of Campbellport, to Bruett Cement Block Co.

BIDS RECEIVED.

Wilmington, Del.—By Levy Court for building Mendenhall Mill rd., and Ashland and Yorklyn rds. in Christiana Hundred, state road in Appoquinimink Hundred, and the Shaw rd. in Blackbird. The bids follow: Mendenhall Mill rd., J. J. Hollingsworth, \$17,476.20; Edward E. Crumlish, \$11,422.72; Corkran Construction Co., \$12,357; Juniata Paving Co., \$15,835.87, \$14,576.85; William C. Evans, \$16,921.82; B. F. Wickersham, \$15,950; Piedmont Construction Co., \$19,149; William P. Davis, \$11,881.90, \$10,396.67 for local stone. State rd., Appoquinimink Hundred, 884 ft., Horrigan Contracting Co., \$1,633.22, \$1,594.70 limestone; Chesapeake Construction Co., \$1,-

843.80. Shaw rd., 3,762 ft., Horrigan Contracting Co., \$7,138.73, \$6,984.95; Chesapeake Construction Co., \$8,030. Ashland rd., William P. Davis, \$32,553.72, \$35,000, \$37,203.72, for different qualities of road; Corkran Construction Co., local stone, \$28,960; J. J. Hollingsworth, \$46,381.56, \$47,558.56; Juniata Paving Co., local stone, \$30,855.42 and \$31,808.22; Edward E. Crumlish, \$27,843.31, \$28,858.81; William C. Evans, \$25,790.05, \$27,695.65; B. F. Wickersham, \$24,639, \$25,239; Thomas C. Forsythe, \$35,093.60, \$39,558; Piedmont Construction Co., \$32,262, \$33,802; John F. O'Neal, \$35,515.50.

Swampscott, Mass.—Bids for improving sidewalks about town as follows: David J. Sheehan, granolithic, \$1.43 per sq. yd.; J. H. McLaughlin, granolithic, \$1.80 sq. yd.; hard tar, 60c sq. yd.; common tar, 43c sq. yd.; skim coat, 47c sq. yd.; M. McDonough, granolithic, \$1.60 sq. yd.; driveway, \$2 sq. yd.; straight edgestone with smooth face, 65c ft.; curved edgestone, 95c ft.; paen hammered straight edgestone, 75c ft.; tar, concrete, 60c sq. yd.; skim coat, 35c sq. yd.

Long Island City, L. I., N. Y.—Bids for paving as follows:

Regulating, grading, curbing and paving with improved granite blocks on a macadam or concrete foundation, Bway from 10th st. Bayside, to Main st., Douglaston, 3d Ward. Lowest bidder, Newman & Carey Co., Brooklyn, as follows: 2,000 cu. yds. earth excav. outside of gutter line, 40c; 60 lin. ft. 12-in. c.i. pipe $\frac{3}{4}$ -in. thick, \$1.60; 60 lin. ft. 24-in. c. i. pipe $\frac{3}{4}$ -in. thick, \$4; 1 catch basin completed, as per plan, \$150; 50 cu. yds. broken stone in place, \$2.50; 1,500 sq. yds. stone gutters furnished and laid, 40c; 200 sq. yds. stone gutters relaid, 40c; 1,300 cu. yds. of concrete, \$4.90; 11,500 sq. yds. of improved granite block pvt., including sand bed and bituminous grouted joints, \$3.10; 700 cu. yds. concrete laid within railroad franchise area, \$4.90; total, \$47,571. Total of other bids: T. F. Tuohy Co., \$51,759; Peace Bros., \$52,027; Cannon Eng. Co., \$58,655. Regulating and repaving with improved granite blocks and with old granite blocks split and redressed, on concrete foundation, Vernon ave. and the Boulevard from 4th st. to Fulton ave., 1st Ward. Lowest bidder: Astoria Construction Co., Long Island City, as follows: 50 cu. yds. rock excav. \$1; 18,000 lin. ft. new bluestone curb set in concrete, 80c; 9,000 lin. ft. old curb redressed and reset in concrete, 40c; 25,000 sq. ft. new flagstone sidewalk, 26c; 100,000 sq. ft. old flagstone sidewalk retimmed and relaid, 3c; 8,700 cu. yds. concrete, \$4.35; 29,000 sq. yds. improved granite block pvt., including sand bed and bituminous grouted joints, \$2.30; 37,500 sq. yds. old granite block pvt. taken up, split and relaid on a concrete foundation, \$1.40; delivering 1,000 tons of old paving blocks on cars of the Long Island Railroad at Long Island City, \$1.25; 6,000 cu. yds. concrete in place within the railroad franchise area, \$4.30; total, \$211,645. Other bidders: Chas. A. Meyers, \$232,165; Newman & Carey Co., \$271,880; H. J. Mullen, \$242,825; Peace Bros., \$282,475; Evergreen Construction Co., \$225,545. Regulating and repaving with improved granite blocks with sand joints and asphaltic concrete and wood blocks on a concrete foundation, Corona ave. from Bway to Strongs Causeway, 2d Ward. Lowest bidder, J. F. Hill, of Chicago, Ill., as follows: 2,000 cu. yds. excav. outside gutter lines, 50c; 2,500 cu. yds. concrete, \$5.37; 10 cu. yds. reinforced concrete binder, 16c; 100 lin. ft. old curb reset, 25c; 250 sq. ft. old flagstone sidewalk relaid, 14c; 250 sq. ft. cement sidewalk, furnished and laid, and one year maintenance, 25c; 60 lin. ft. 12-in. vitr. sewer pipe in place, 85c; 60 lin. ft. 12-in. c. i. pipe $\frac{3}{4}$ -in. thick, in place, \$1.75; 500 sq. yds. stone pvt. relaid, 65c; 28,000 sq. yds. of completed asphaltic concrete pvt., \$1.02; 8,000 sq. yds. completed wood block pvt., including mortar bed and sand joints, \$2.16; 3,500 cu. yds. of concrete, \$5.37; 5,000 sq. yds. of improved granite block pvt., including sand bed and sand joints, \$2.23; total, \$91,398. Totals of other bids: Cleveland Trinidad Asphalt Co., \$110,513; Uvalde Construction Co., \$112,125; Newman & Carey Co., \$102,936; Barber Asphalt Paving Co., \$115,617. Regulating, curbing and repaving with wood blocks, on a concrete foundation, Jackson ave., from Borden ave. to Thomson ave., 1st Ward: Republic Construction Co., 18 Bway, N. Y. City, \$104,225; Barber Asphalt Paving Co., \$116,505, and U. S. Wood Preserving Co., \$108,287.

Bryan, O.—Bids for paving portions of S. Main and W. and E. Wilson sts., in all

about 22,657 sq. yds., from plans of Smith & Boulay Co., 322 The Nasby, Toledo, and the following are the lowest bids on totals of all streets on different materials: Metropolitan brick, E. A. Freshwater & Son, Cleveland, \$57,057; brick, H. S. Enck, Lima, \$54,396; asphalt concrete, Carpenter & Anderson, Grand Rapids, Mich., \$56,235; sheet asphalt, Cleveland Trinidad Paving Co., Cleveland, \$67,109; Thomas reinforced concrete, Labodie, of River Rouge, Mich., \$53,151; Asphalt Block (only bidder), Asphalt Block Paving Co., Toledo, \$58,821.

SEWERAGE

Walkerville, Mont.—New sewer will be constructed distance of 700 feet along North Main st.

Glenoiden, Pa.—Citizens have approved of loan of \$30,000 for purpose of extending sewer system and for street improvements.

CONTRACTS AWARDED.

Wallingford, Conn.—To E. F. Kavanagh, at \$31,697, for construction of sanitary and storm water sewers.

Baltimore, Md.—By Board of Awards, for repairs to sewerage work. Contract was awarded to F. E. Schneider Paving Co., Law Building, at \$250,000. Bids were also opened for constructing Sec. No. 6 of high level interceptor, sanitary contract No. 95, and contract for same was awarded to Ryan & Reilly, 612 Union Trust Building, at \$113,133.50.

Albany, N. Y.—By Board of Contract and Supply, for contracting sewers as follows: Sewers on new streets in Arbor Hill section, J. S. Campion, \$11,840.75; Yates st., from Lake ave. to Quail st., W. N. Grounsell, \$873; Hamilton st., from Eagle to High st., B. F. Mulderry, \$761.50; South Swan st., W. N. Grounsell, \$735.50.

Seattle, Wash.—By Board of Public Works, for construction of sewers on Twenty-eighth ave. South, to Jabber & Mislach Co. at \$21,814.67.

WATER SUPPLY

Mansfield, Ark.—Plans are being prepared for waterworks system.

Macon, Ga.—Five miles of water mains will be installed by Water Commissioners.

Vandalia, Ga.—Election will be held Aug. 24 for voting on \$15,000 bond issue for waterworks and electric light improvements.

La Salle, Ill.—Improvements to waterworks system are being considered.

Olney, Ill.—Bonds in sum of \$35,000 have been issued for extension of mains.

Kansas City, Kan.—Bonds in sum of \$150,000 have been authorized for improving municipal waterworks system.

Olathe, Kan.—Extensive waterworks improvements have been recommended.

Bangor, Me.—Bids are being received for extension of water mains.

Asbury Park, N. J.—Construction of 50,000,000-gallon reservoir is urged by City Engineer, R. S. Savage.

Ramsey, N. J.—By vote of 164 to 42, people of Ramsey have voted for municipal ownership of water plant. Plan is to construct water works at cost of about 60,000. Artesian wells will furnish water.

Springfield, Ore.—Sum of \$10,000 has been appropriated for extending water mains.

Springfield, Ore.—New filter will be installed at water plant.

East Greenville, Pa.—East Greenville borough, which has been getting its water from Perkiomen, a mile away, is

obliged to install mammoth filtering plant.

Dallas, Tex.—Mayor W. M. Holland and Finance Commissioner W. T. Henderson have signed \$400,000 issue of waterworks bonds, authorized at last municipal election.

CONTRACTS AWARDED.

Schenectady, N. Y.—For furnishing cast iron bell and spigot water pipe for use in some of new streets of city to United States Cast Iron Pipe Foundry Company of Philadelphia, Pa., while contract for fifty extension gate boxes was awarded to R. D. Wood and Company of Philadelphia, Pa.

Seattle, Wash.—By Board of Public Works for laying of water mains on 21st ave. South to Ferguson Cont. Co. at \$47,273.06.

Milwaukee, Wis.—By Board of Public Works for construction of water mains across upper Milwaukee river, at Concord ave., to R. J. Hickey, at \$28,003.30, and, \$6,428.50, respectively.

BIDS RECEIVED.

New York, N. Y.—For furnishing, delivering and laying water mains in 1st, 5th and Park aves., in E. 23d, E. 24th, E. 25th, E. 29th, E. 48th, E. 93d and Exterior sts., Boro. of Manhattan, and the lowest bid was that of Jas. O'Leary, 24b E. 202d st., at \$85,786. Some of the principal items in his bid are as follows: 900 tons c. i. pipe, \$23 per ton; 160 tons castings, \$70 per ton; 14,000 cu. yds. earth excav., 50c; 4,500 cu. yd. rock excav., 50c; 1,500 cu. yds. masonry excav., 50c; 20,000 12-in. pipe to lay, \$1.25, and 1,200 6-in. pipe, 5c; total, \$85,786. Other bidders: Soraci Contracting Co., \$86,452; Walton Contracting Co., \$86,440, and Thos. Crimmins Contracting Co., \$129,745.

LIGHTING AND POWER

Providence, R. I.—Board of Aldermen will hold special meeting to consider proposed electric lighting franchise and contract with Narragansett Electric Lighting Company.

North Ogden, Utah.—Installation of electric lighting is being discussed.

FIRE EQUIPMENT

Atlanta, Ga.—New fire alarm system will shortly be installed.

Des Moines, Ia.—Plans are being considered for modernizing fire department. Purchase of fire engines and motor-driven fire apparatus is probable.

Lowell, Mass.—At meeting of municipal council Commissioner Andrew E. Barrett was voted authority to contract for three combination hose and chemical automobiles for fire department to be paid for out of fire department appropriation, contract or contracts to be made through purchasing agent's office.

West Springfield, Mass.—Appropriation is being considered for purchase of motor fire truck.

Kansas City, Mo.—Bids will be advertised for 10,000 ft. of new hose.

Le Roy, N. Y.—Purchase of combination chemical hose and ladder truck is being considered.

Southampton, N. Y.—Purchase of motor tractor is being considered by Hose Co. No. 1.

Salisbury, N. C.—Purchase of motor fire truck is under consideration.

Fostoria, O.—Purchase of new equipment for this city is under consideration.

Norwood, O.—Bids will be asked for

by Director of Public Safety for 5,000 ft. of hose.

Warren, O.—Purchase of motor fire truck is being discussed.

Portland, Ore.—Four new stations will probably be erected.

Windsor, Ont., Can.—Purchase of steamer or motor engine has been recommended.

CONTRACTS AWARDED.

Quincy, Ill.—To Acme Rubber Company, of Trenton, N. J., for 1,000 feet of fire hose at 85 cents per foot.

Richwood, O.—For furnishing auto fire engine to American-La France Fire Engine Company of Elmira, N. Y., at \$6,800.

BRIDGES

Daytona, Fla.—New bridge of modern construction will be built at Daytona to Daytona Beach.

Winchester, Ky.—Movement is being agitated by people of northern part of Madison county to have bridge built by two counties of Madison and Clark, across Kentucky River, near Boonesboro.

Rockport, Tex.—Election on question of issuing bonds by Aransas county for purpose of constructing causeway across bay between Live Oak and Lamar Peninsulas has been carried by an overwhelming majority.

Superior, Wis.—Concrete bridge is to be built over Crawford creek, just east of Greenwood cemetery.

CONTRACTS AWARDED.

Charleston, Ill.—By Highway Comrs. of Ashmore and Morgan twps. for bridge to Decatur Bridge Co.

Hopedale, Ill.—By Highway Comrs. of Hopedale Twp. and Bridge Committee of the Bd. of Supervs. of county have for repairs to bridge over the Mackinaw River as follows: Iron work, to Joliet Bridge & Iron Co., for \$1,584; concrete work, to Ed. Cooney, of Tremont, for \$8.80 per cu. yd.

Richmond, Ind.—For Mettert Bridge in Jefferson Township, \$690, and Lucinda Deal culvert in New Garden Township, \$445, to I. E. Smith, of Richmond. Marshall M. Knapp, of Haagerstown secured construction of the Patrick McDonald culvert on line between Clay and Center Townships for \$330 and repairs to the William Howe culvert in Harrison Township at \$440. Repairs to Kimes bridge went to Bury Construction Co., of Newcastle, at \$595, and concrete culvert in Perry Township went to same company for \$450.

Waynesburg, Pa.—By County Commissioners for construction of bridge at Ryerson Station to T. J. Barnard, of Clarksville, at \$995, and for Kings Bridge in Wayne township to Ferris Bridge Co., at \$965.

Dallas, Tex.—To Midland Bridge Co. for building 100-ft. steel bridge across Denton Creek on the Coppell road, at \$2,147.

MISCELLANEOUS

Sanford, N. C.—County Commissioners have awarded \$25,000 bond issue to S. A. Kean & Co., of Chicago, Ill.

CONTRACT AWARDED.

Richmond, Va.—By Council Committee on Grounds and Buildings to A. C. Bedford for erection of proposed memorial archway and entrance gates at Joseph Bryan Park, cost to be \$4,250. Memorial was designed by Architects Carneal and Johnston.

BIDS ASKED FOR

municipal work. It is classified and gives dates of opening, kind of work and the name of the person to communicate with. To any firm interested in doing business in our field, this table alone is worth many times the cost of the paper.

Under this heading we print each week a table of bids called for in connection with all kinds of mu-